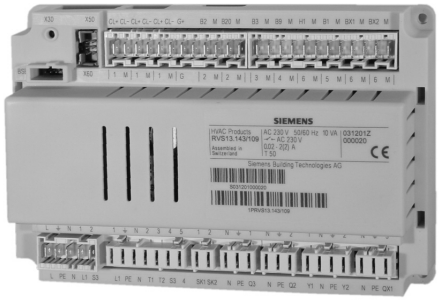
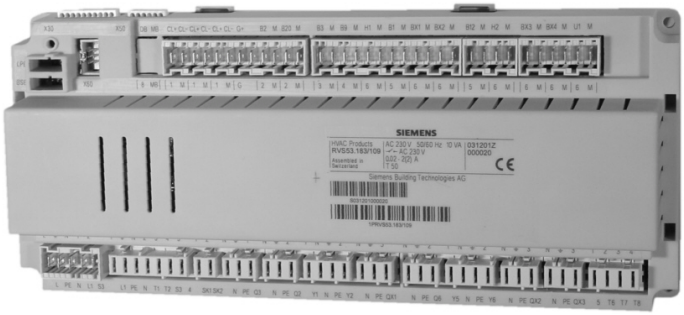
SIEMENS





RVS43..
RVS63..
AVS75..
AVS37..
QAA75..
QAA78..
QAA55..

Albatros^2 Boiler Controllers

User Manual OEM

Edition 3.0
Controller series B
CE1U2354en01a
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Building Technologies
HVAC Products

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1 Overview of OEM settings

The table below shows all available settings. However, certain operating lines may be hidden, depending on the type of unit.

Legend

E = End user I = Commissioning F = Heating engineer O = OEM
BZ = Operating line
[1)] QAA75../78.. only
[4)] RVS43.. only
[6)] RVS63.. only

Operating line	User level	Function	Default value	Min	Max	Unit
Time of day and date						
1	E	Hours / minutes	-	00:00	23:59	hh:mm
2	E	Day/month	-	01.01	31.12	dd.MM
3	E	Year	-	2004	2099	yyyy
5	F	Start of summertime	25.03	01.01	31.12	dd.MM
6	F	End of summertime	25.10	01.01	31.12	dd.MM
Operator unit						
20	E	Language German ¦ …	German			-
21	O	Display special operation Off ¦ On	On			
22	F	Info Temporarily ¦ Permanently	Temporarily			-
26	F	Operation lock Off ¦ On	Off			-
27	F	Programming lock Off ¦ On	Off			-
28	I	Direct adjustment Automatic storage ¦ Save with acknowledgment	Save with acknowledgment			
30	O	Save basic settings No ¦ Yes	No			
31	O	Activate basic settings No ¦ Yes	No			
40[1)]	I	Used as Room unit 1 ¦ Room unit 2 ¦ Room unit P ¦ Operator unit 1 ¦ Operator unit 2 ¦ Operator unit P ¦ Service unit	Room unit 1			-
42	I	Assignment device 1 Heating circuit 1 ¦ Heating circuits 1 and 2 ¦ Heating circuits 1 and P ¦ All heating circuits	Heating circuit 1			-
44	I	Operation HC2 Commonly with HC1 ¦ Independently	Commonly with HC1			-
46	I	Operation HCP Commonly with HC1 ¦ Independently	Commonly with HC1			-
48[1)]	I	Action occupancy button None ¦ Heating circuit 1 ¦ Heating circuit 2 ¦ Commonly	Heating circuit 1			-
54[1)]	F	Readjustment room sensor	0.0	-3	3	°C
70	F	Software version	-	0	99.9	-
Radio						
120	I	Binding No ¦ Yes	No			

Operating line	User level	Function	Default value	Min	Max	Unit
121	I	Test mode Off ¦ On	Off			
130	I	Room unit 1 Missing ¦ Ready ¦ No recept'n ¦ Change batt	-			-
131	I	Room unit 2 Missing ¦ Ready ¦ No recept'n ¦ Change batt	-			-
132	I	Room unit P Missing ¦ Ready ¦ No recept'n ¦ Change batt	-			
133	I	OutsideSens Missing ¦ Ready ¦ No recept'n ¦ Change batt	-			-
134	I	Repeater Missing ¦ Ready ¦ No recept'n ¦ Change batt	-			-
135	I	Operator unit 1 Missing ¦ Ready ¦ No recept'n ¦ Change batt	-			
136	I	Operator unit 2 Missing ¦ Ready ¦ No recept'n ¦ Change batt	-			
137	I	Operator unit P Missing ¦ Ready ¦ No recept'n ¦ Change batt	-			-
138	I	Service unit Missing ¦ Ready ¦ No recept'n ¦ Change batt	-			-
140	I	Delete all devices No ¦ Yes	No			-
Time prog heating circuit 1						
500	E	Preselection Mo - Su ¦ Mo - Fr ¦ Sa - Su ¦ Mo ¦ Tu ¦ We ¦ Th ¦ Fr ¦ Sa ¦Su	Mo - Su			-
501	E	1st phase on	6:00	00:00	24:00	hh:mm
502	E	1st phase off	22:00	00:00	24:00	hh:mm
503	E	2nd phase on	24:00	00:00	24:00	hh:mm
504	E	2nd phase off	24:00	00:00	24:00	hh:mm
505	E	3rd phase on	24:00	00:00	24:00	hh:mm
506	E	3rd phase off	24:00	00:00	24:00	hh:mm
516	E	Default values No ¦ Yes	No			-
Time prog heating circuit 2						
520	E	Preselection Mo - Su ¦ Mo - Fr ¦ Sa - Su ¦ Mo ¦ Tu ¦ We ¦ Th ¦ Fr ¦ Sa ¦Su	Mo - Su			-
521	E	1st phase on	6:00	00:00	24:00	hh:mm
522	E	1st phase off	22:00	00:00	24:00	hh:mm
523	E	2nd phase on	24:00	00:00	24:00	hh:mm
524	E	2nd phase off	24:00	00:00	24:00	hh:mm
525	E	3rd phase on	24:00	00:00	24:00	hh:mm
526	E	3rd phase off	24:00	00:00	24:00	hh:mm
536	E	Default values No ¦ Yes	No			-
Time program 3/HCP						
540	E	Preselection Mo - Su ¦ Mo - Fr ¦ Sa - Su ¦ Mo ¦ Tu ¦ We ¦ Th ¦ Fr ¦ Sa ¦Su	Mo - Su			-
541	E	1st phase on	6:00	00:00	24:00	hh:mm
542	E	1st phase off	22:00	00:00	24:00	hh:mm
543	E	2nd phase on	24:00	00:00	24:00	hh:mm
544	E	2nd phase off	24:00	00:00	24:00	hh:mm
545	E	3rd phase on	24:00	00:00	24:00	hh:mm

Operating line	User level	Function	Default value	Min	Max	Unit
546	E	3rd phase off	24:00	00:00	24:00	hh:mm
556	E	Default values No ¦ Yes	No			-
Time program 4/DHW						
560	E	Preselection Mo - Su ¦ Mo - Fr ¦ Sa - Su ¦ Mo ¦ Tu ¦ We ¦ Th ¦ Fr ¦ Sa ¦Su	Mo - Su			-
561	E	1st phase on	6:00	00:00	24:00	hh:mm
562	E	1st phase off	22:00	00:00	24:00	hh:mm
563	E	2nd phase on	24:00	00:00	24:00	hh:mm
564	E	2nd phase off	24:00	00:00	24:00	hh:mm
565	E	3rd phase on	24:00	00:00	24:00	hh:mm
566	E	3rd phase off	24:00	00:00	24:00	hh:mm
576	E	Default values No ¦ Yes	No			-
Time program 5						
600	E	Preselection Mo - Su ¦ Mo - Fr ¦ Sa - Su ¦ Mo ¦ Tu ¦ We ¦ Th ¦ Fr ¦ Sa ¦Su	Mo - Su			-
601	E	1st phase on	6:00	00:00	24:00	hh:mm
602	E	1st phase off	22:00	00:00	24:00	hh:mm
603	E	2nd phase on	24:00	00:00	24:00	hh:mm
604	E	2nd phase off	24:00	00:00	24:00	hh:mm
605	E	3rd phase on	24:00	00:00	24:00	hh:mm
606	E	3rd phase off	24:00	00:00	24:00	hh:mm
616	E	Default values No ¦ Yes	No			-
Holidays heating circuit 1						
641	E	Preselection Period 1 ¦ Period 2 ¦ Period 3¦ Period 4¦ Period 5¦ Period 6¦ Period 7¦ Period 8	Period 1			-
642	E	Start	--.--	01.01	31.12	dd.mm
643	E	End	--.--	01.01	31.12	dd.mm
648	E	Operating level Frost protection ¦ Reduced	Frost protection			-
Holidays heating circuit 2						
651	E	Preselection Period 1 ¦ Period 2 ¦ Period 3¦ Period 4¦ Period 5¦ Period 6¦ Period 7¦ Period 8	Period 1			-
652	E	Start	--.--	01.01	31.12	dd.mm
653	E	End	--.--	01.01	31.12	dd.mm
658	E	Operating level Frost protection ¦ Reduced	Frost protection			-
Holidays heating circuit P						
661	E	Preselection Period 1 ¦ Period 2 ¦ Period 3¦ Period 4¦ Period 5¦ Period 6¦ Period 7¦ Period 8	Period 1			-
662	E	Start	--.--	01.01	31.12	dd. mm
663	E	End	--.--	01.01	31.12	dd.mm
668	E	Operating level Frost protection ¦ Reduced	Frost protection			-
Heating circuit 1						
710	E	Comfort cooling setpoint	20.0	Operating line 712	Operating line 716	°C
712	E	Reduced setpoint	16	Operating line 714	Operating line 710	°C

Operating line	User level	Function	Default value	Min	Max	Unit
714	E	Frost protection setpoint	10.0	4	Operating line 712	°C
716	F	Comfort setpoint maximum	35.0	Operating line 710	35	°C
720	E	Heating curve slope	1.50	0.10	4.00	-
721	F	Heating curve displacement	0.0	-4.5	4.5	°C
726	F	Heating curve adaption Off ¦ On	Off			-
730	E	Summer/winter heating limit	18	– – – / 8	30	°C
732	F	24-hour heating limit	-3	– – – / -10	10	°C
740	I	Flow temp setpoint min	8	8	Operating line 741	°C
741	I	Flow temp setpoint max	80	Operating line 740	95	°C
750	F	Room influence	20	– – – / 1	100	%
760	F	Room temp limitation	1	– – – / 0.5	4	°C
770	F	Boost heating	5	– – – / 0	20	°C
780	F	Quick setback Off ¦ Down to reduced setpoint ¦ Down to frost prot setp	Down to reduced setpoint			-
790	F	Optimum start control max	0	0	360	min
791	F	Optimum top control max	0	0	360	min
800	F	Reduced setp increase start	– – –	– – – / -30	10	°C
801	F	Reduced setp increase end	-15	-30	Operating line 800	°C
820	F	Overtemp prot pump circuit Off ¦ On	On			-
830	F	Mixing valve boost	5	0	50	°C
832	F	Actuator type 2-position ¦ 3-position	3-position			-
833	F	Switching differential 2-pos	2	0	20	°C
834	F	Actuator running time	120	30	873	s
835	O	Mixing valve Xp	32	1	100	°C
836	O	Mixing valve Tn	120	10	873	s
850	I	Floor curing function Off ¦ Functional heating ¦ Curing heating ¦ Functional/ curing heating¦ Curing/functional heating ¦ Manually	Off			-
851	I	Floor curing setp manual	25	0	95	°C
861	F	Excess heat draw Off ¦ Heating mode ¦ Always	Always			
870	F	With buffer storage tank No ¦ Yes	Yes			-
872	F	With primary controller / system pump No ¦ Yes	Yes			
882[6)]	F	Pump speed min	100	0	100	%
883[6)]	F	Pump speed max	100	0	100	%
900	F	Optg mode changeover None ¦ Protection ¦ Reduced ¦ Comfort ¦ Automatic	Protection mode			
Cooling circuit 1						
901[4)]	E	Operating mode Off ¦ Automatic	Automatically			-
902[4)]	E	Comfort cooling setpoint	24.0	15	40	°C
907[4)]	E	release 24h/day ¦ Time programs HCs ¦ Time program 5	24 h/day			-
908[4)]	I	Flow setpoint at OT 25°C	20	8	35	°C
909[4)]	I	Flow setpoint at OT 35°C	16	8	35	°C
912[4)]	I	Cooling limit at OT (outside temperature)	20	– – – / 8	355	°C

Operating line	User level	Function	Default value	Min	Max	Unit
913 [4)]	F	Locking period at end of heating	24	– – – / 8	100	h
918 [4)]	F	Start of summer compensation at OT	26	20	35	°C
919 [4)]	F	End of summer compensation at OT	35	20	35	°C
920 [4)]	F	Summer compensation setpoint increase	4	– – – / 1	10	°C
923 [4)]	I	Flow setpoint min. OT 25°C	18	8	35	°C
924 [4)]	I	Flow setpoint min. OT 35°C	18	8	35	°C
928 [4)]	F	Room influence	80	– – – / 1	10	%
932 [4)]	F	Room temp limitation	0.5	– – – / 0.5	4	°C
938 [4)]	F	Mixing valve subcooling	0	0	20	°C
939 [4)]	F	Actuator type 2-position ¦ 3-position	3-position			
940 [4)]	F	Switching differential 2-pos	2	0	20	°C
941 [4)]	F	Actuator running time	120	30	873	s
942 [4)]	O	Mixing valve Xp	12	1	100	°C
943 [4)]	O	Mixing valve Tn	90	10	873	s
945 [4)]	F	Mixing valve in heating mode Control ¦ Open	Controls			
946 [4)]	F	Dewpt monitor locking time	60	– – – / 10	600	min
947 [4)]	F	Flow setpt increase hygro	3	– – – / 1	10	°C
948 [4)]	F	Start flow increase at R.H.	60	0	100	%
950 [4)]	I	Flow temp diff dewpoint	2	– – – / 0	10	°C
962 [4)]	F	With buffer storage tank No ¦ Yes	No			
963 [4)]	F	With primary controller / system pump No ¦ Yes	No			
969 [4)]	I	Optg mode changeover None ¦ Off ¦ Automatic	Off			
Heating circuit 2						
1010	E	Comfort cooling setpoint	20.0	Op line 1012	Operating line 1016	°C
1012	E	Reduced setpoint	16	Op line 1014	Operating line 1010	°C
1014	E	Frost protection setpoint	10.0	4	Operating line 1012	°C
1016	F	Comfort setpoint maximum	35.0	Op line 1010	35	°C
1020	E	Heating curve slope	1.50	0.10	4.00	-
1021	F	Heating curve displacement	0.0	-4.5	4.5	°C
1026	F	Heating curve adaption Off ¦ On	Off			-
1030	E	Summer/winter heating limit	18	– – – / 8	30	°C
1032	F	24-hour heating limit	-3	– – – / -10	10	°C
1040	I	Flow temp setpoint min	8	8	Operating line 1041	°C
1041	I	Flow temp setpoint max	80	Op line 1040	95	°C
1050	F	Room influence	20	– – – / 1	100	%
1060	F	Room temp limitation	1	– – – / 0.5	4	°C
1070	F	Boost heating	5	– – – / 0	20	°C
1080	F	Quick setback Off ¦ Down to reduced setpoint ¦ Down to frost prot setp	Down to reduced setpoint			-
1090	F	Optimum start control max	0	0	360	min
1091	F	Optimum top control max	0	0	360	min
1100	F	Reduced setp increase start	– – –	– – – / -30	10	°C
1101	F	Reduced setp increase end	-15	-30	Operating line 1100	°C

Operating line	User level	Function	Default value	Min	Max	Unit
1120	F	Overtemp prot pump circuit Off ¦ On	On			-
1130	F	Mixing valve boost	5	0	50	°C
1132	F	Actuator type 2-position ¦ 3-position	3-position			-
1133	F	Switching differential 2-pos	2	0	20	°C
1134	F	Actuator running time	120	30	873	s
1135	O	Mixing valve Xp	32	1	100	°C
1136	O	Mixing valve Tn	120	10	873	s
1150	F	Floor curing function Off ¦ Functional heating ¦ Curing heating ¦ Functional/curing heating¦ Curing/functional heating ¦ Manually	Off			-
1151	F	Floor curing setp manual	25	0	95	°C
1161	F	Excess heat draw Off ¦ Heating mode ¦ Always	Always			
1170	F	With buffer storage tank No ¦ Yes	Yes			-
1172	F	With primary controller / system pump No ¦ Yes	Yes			
1182[6)]	F	Pump speed min	100	0	100	%
1183[6)]	F	Pump speed max	100	0	100	%
1200	F	Optg mode changeover None ¦ Protection ¦ Reduced ¦ Comfort ¦ Automatic	Protection mode			
Heating circuit P						
1300	E	Operating mode Protection ¦ Automatic ¦ Reduced ¦ Comfort	Automatically			-
1310	E	Comfort cooling setpoint	20.0	Op line 1312	Operating line 1316	°C
1312	E	Reduced setpoint	16	Op line 1314	Operating line 1310	°C
1314	E	Frost protection setpoint	10.0	4	Operating line 1312	°C
1316	F	Comfort setpoint maximum	35.0	Op line 1310	35	°C
1320	E	Heating curve slope	1.50	0.10	4.00	-
1321	F	Heating curve displacement	0.0	-4.5	4.5	°C
1326	F	Heating curve adaption Off ¦ On	Off			-
1330	E	Summer/winter heating limit	18	– – – / 8	30	°C
1332	F	24-hour heating limit	-3	– – – / -10	10	°C
1340	F	Flow temp setpoint min	8	8	Operating line 1341	°C
1341	F	Flow temp setpoint max	80	Op line 1340	95	°C
1350	F	Room influence	20	– – – / 1	100	%
1360	F	Room temp limitation	1	– – – / 0.5	4	°C
1370	F	Boost heating	5	– – – / 0	20	°C
1380	F	Quick setback Off ¦ Down to reduced setpoint ¦ Down to frost prot setp	Down to reduced setpoint			-
1390	F	Optimum start control max	0	0	360	min
1391	F	Optimum top control max	0	0	360	min
1400	F	Reduced setp increase start	– – –	– – – / -30	10	°C
1401	F	Reduced setp increase end	-15	-30	Operating line 1400	°C
1420	F	Overtemp prot pump circuit Off ¦ On	On			-

Operating line	User level	Function	Default value	Min	Max	Unit
1450	I	Floor curing function Off ¦ Functional heating ¦ Curing heating ¦ Functional/ curing heating¦ Curing/functional heating ¦ Manually	Off			-
1451	I	Floor curing setp manual	25	0	95	°C
1455	F	Floor curing setp current	0	0	95	°C
1456	F	Floor curing day current	0	0	32	
1457[4)]	F	Floor curing days complete	0	0	32	
1461	F	Excess heat draw Off ¦ Heating mode ¦ Always	Always			
1470	F	With buffer storage tank No ¦ Yes	Yes			-
1472	F	With primary controller / system pump No ¦ Yes	Yes			
1482[6)]	F	Pump speed min	100	0	100	%
1483[6)]	F	Pump speed max	100	0	100	%
1500	F	Optg mode changeover None ¦ Protection ¦ Reduced ¦ Comfort ¦ Automatic	Protection mode			
DHW						
1610	E	Nominal setpoint	55	Op line 1612	BZ 1614 OEM	°C
1612	F	Reduced setpoint	40	8	Operating line 1610	°C
1614	O	Nominal setpoint max	65	8	80	°C
1620	I	Release 24h/day ¦ Time programs HCs ¦ Time program 4/DHW	Time programs HCs			-
1630	I	Charging priority Absolute ¦ Shifting ¦ None ¦ MC shifting, PC absolute	MC shifting, PC absolute			-
1640	F	Legionella function Off ¦ Periodically ¦ Fixed weekday	Fixed weekday			-
1641	F	Legionella funct periodically	3	1	7	Days
1642	F	Legionella funct weekday Monday ¦ Tuesday ¦ Wednesday ¦ Thursday ¦ Friday ¦ Saturday ¦ Sunday	Monday			
1644	F	Legionella function time	– – –	– – – / 00:00	23:50	hh:mm
1645	F	Setpoint of Legionella function	65	55	95	°C
1646	F	Legionella function dwelling time	30	– – – / 10	360	min
1647	F	Legionella funct circ pump Off ¦ On	On			-
1660	F	Circulating pump release Time program 3/HCP ¦ DHW release ¦ Time program 4/DHW¦ Time program 5	DHW release			-
1661	F	Circulating pump cycling Off ¦ On	On			-
1663	F	Circulation setpoint	45	8	80	°C
Pumps H						
2008	O	H1 DHW charging priority No ¦ Yes	Yes			
2010	F	H1 Excess heat draw Off ¦ On	On			
2012	F	H1 with buffer storage tank No ¦ Yes	Yes			-
2014	F	H1 prim contr/system pump No ¦ Yes	Yes			-
2015 [4)]	F	H1 Refrig demand 2-pipe system ¦ 4-pipe system	2-pipe system			

Operating line	User level	Function	Default value	Min	Max	Unit
2033	O	H2 DHW charging priority No ¦ Yes	Yes			
2035	F	H2 Excess heat draw Off ¦ On	On			
2037	F	H2 with buffer storage tank No ¦ Yes	Yes			-
2039	F	H2 prim contr/system pump No ¦ Yes	Yes			-
2040 [4)]	F	H2 Refrig demand 2-pipe system ¦ 4-pipe system	2-pipe system			
2044 [6)]	O	H3 DHW charging priority No ¦ Yes	Yes			
2046 [6)]	F	H3 Excess heat draw Off ¦ On	On			
2048 [6)]	F	H3 with buffer No ¦ Yes	Yes			
2050 [6)]	F	H2 prim contr/system pump No ¦ Yes	Yes			
Swimming pool						
2055	F	Setpoint solar heating	26	8	80	°C
2056	F	Setpoint source heating	22	8	80	°C
2065	F	Charging priority solar No ¦ Yes	No			
2070	O	Swimming pool temp max	32	8	95	°C
2080	F	With solar integration No ¦ Yes	Yes			
Primary controller / system pump						
2110	O	Flow temp setpoint min	8	8	95	°C
2111	O	Flow temp setpoint max	80	8	95	°C
2112	O	Flow setpoint, cooling min	8	8	20	°C
2130	O	Mixing valve boost	10	0	50	°C
2131	O	Mixing valve subcooling	0	0	20	°C
2132	O	Actuator type 2-position ¦ 3-position	3-position			
2133	O	Switching differential 2-pos	2	0	20	°C
2134	O	Actuator running time	120	30	873	s
2135	O	Mixing valve Xp	32	1	100	°C
2136	O	Mixing valve Tn	120	10	873	s
2150	I	Primary controller / system pump Before buffer st tank ¦ After buffer st tank	After buffer st tank			-
Boiler						
2200	O	Operating mode Continuous operation ¦ Automatic ¦ Auto, extended running time	Automatically			
2203	F	Release below outside temp	– – –	– – – / -50	50	°C
2205	F	Economy mode Off ¦ On DHW ¦ On	Off			
2208	O	Full charging buffer Off ¦ On	Off			
2210	F	Setpoint min	40	Op line 2211 OEM	Setpoint manual operation	°C
2211	O	Setpoint min OEM	40	8	95	°C

Operating line	User level	Function	Default value	Min	Max	Unit
2212	F	Setpoint max	80	Setpoint manual operation	Op line 2213 OEM	°C
2213	O	Setpoint max OEM	85	8	120	°C
2220[6)]	O	Release integral stage 2	50	0	500	°C min
2221[6)]	O	Reset integral stage 2	10	0	500	°C min
2232[6)]	O	Damper actuator running time	60	7.5	480	s
2233[6)]	O	Modulating Xp	20	1	200	°C
2234[6)]	O	Modulating Tn	150	10	873	s
2235[6)]	O	Modulating Tv	4.5	0	30	s
2240	O	Switching differential of the boiler	8	0	20	°C
2241	O	Burner running time min	4	0	20	min
2250	O	Pump overrun time	5	0	20	min
2260	O	Prot boil startup consumers Off ¦ On	On			
2261	O	Prot boil startup boil pump Off ¦ On	On			
2262	O	Optimum start control Off ¦ On	Off			
2270	F	Return setpoint min	8	8	95	°C
2271	O	Return setpoint min OEM	8	8	95	°C
2272	O	Return influence consumers Off ¦ On	On			
2282	O	Actuator running time	120	30	873	s
2283	O	Mixing valve Xp	32	1	100	°C
2284	O	Mixing valve Tn	120	10	873	s
2285	O	Mixing valve Tv	10	0	60	s
2290	O	Switching differential bypass pump	6	0	20	°C
2291	O	Control bypass pump Parallel burner operation ¦ Return temp	Return temperature			
2300	O	Frost prot plant boiler pump Off ¦ On	Off			
2310	O	Limit thermostat function Off ¦ On	On			
2315	O	Temp differential min	– – –	– – – / 0	80	°C
2316	O	Temp differential max	– – –	– – – / 0	80	°C
2322[6)]	O	Pump speed min	40	0	100	%
2323[6)]	O	Pump speed max	100	0	100	%
2324[6)]	O	Speed Xp	32	1	100	°C
2325[6)]	O	Speed Tn	120	10	873	s
2326[6)]	O	Speed Tv	10	0	60	s
2330	F	Output nominal	50	0	1000	kW
2331	F	Output of basic stage	30	0	1000	kW
2340[6)]	F	Auto source seq 2x1 casc	500	– – – / 10	990	h
Cascade						
3510	O	Lead strategy Late on, early off ¦ Late on, late off ¦ Early on, late off	Late on, late off			
3511	O	Output band min	40	0	100	%
3512	O	Output band max	90	0	100	%
3530	O	Release integral source seq	50	0	500	°C min
3531	O	Reset integral source seq	20	0	500	°C min

Operating line	User level	Function	Default value	Min	Max	Unit
3532	F	Restart lock	300	0	1800	s
3533	F	Switch-on delay	5	0	120	min
3534	O	Forced time basic stage	60	0	1200	s
3540	F	Auto source seq ch'over	500	– – – / 10	990	h
3541	F	Auto source seq exclusion None ¦ First ¦ Last ¦ First and last	None			
3544	F	Leading source Source 1 ¦ Source 2 ¦ … ¦ Source 16	Source 1			
3550	O	Prot startup cascade pump Off ¦ On	On			
3560	F	Return setpoint min	8	8	95	°C
3561	O	Return setpoint min OEM	8	8	95	°C
3562	O	Return influence consumers Off ¦ On	On			
3570	O	Actuator running time	120	30	873	s
3571	O	Mixing valve Xp	32	1	100	°C
3572	O	Mixing valve Tn	120	10	873	s
3590	O	Temp differential min	– – –	– – – / 0	20	°C
Solar						
3810	F	Temp diff on	8	0	40	°C
3811	F	Temp diff off	4	0	40	°C
3812	F	Charg temp min DHW st tank	– – –	– – – / 8	95	°C
3813	O	Temp diff on buffer	– – –	– – – / 0	40	°C
3814	O	Temp diff off buffer	– – –	– – – / 0	40	°C
3815	F	Charging temp min buffer	– – –	– – – / 8	95	°C
3816	O	Temp diff on swi pool	– – –	– – – / 0	40	°C
3817	O	Temp diff off swi pool	– – –	– – – / 0	40	°C
3818	F	Charging temp min swi pool	– – –	– – – / 8	95	°C
3822	F	Charging prio storage tank None ¦ DHW storage tank ¦ Buffer	DHW storage tank			
3825	F	Charging time relative prio	– – –	– – – / 2	60	min
3826	F	Waiting time relative prio	5	1	40	min
3827	F	Waiting time parallel op	– – –	– – – / 0	40	min
3828	F	Delay secondary pump	60	0	600	s
3830	O	Collector start function	– – –	– – – / 5	60	min
3831	F	Min run time collector pump	20	5	120	s
3832	O	Collector start function on	07:00	00:00	23:50	hh:mm
3833	O	Collector start function off	19:00	00:00	23:50	hh:mm
3834	F	Collector start funct gradient	– – –	– – – / 1	20	min/°C
3840	F	Collector frost protection	– – –	– – – / -20	5	°C
3850	F	Collector overtemp prot	– – –	– – – / 30	350	°C
3860	F	Evaporation heat carrier	– – –	– – – / 60	350	°C
3870[6)]	F	Pump speed min	40	0	100	%
3871[6)]	F	Pump speed max	100	0	100	%
3872[6)]	O	Speed Xp	32	1	100	°C
3873[6)]	O	Speed Tn	120	10	873	s
3880	F	Antifreeze None ¦ Ethylen glycol ¦ ¦ Propylene glycol ¦ Etyl and propyl glycol	None			
3881	F	Antifreeze concentration	30	1	100	%

Operating line	User level	Function	Default value	Min	Max	Unit
3884	F	Pump capacity	200	10	1500	l/h
Solid fuel boiler						
4102	F	Locking other heat sources Off ¦ On	On			
4110	F	Setpoint min	40	8	120	°C
4130	F	Temp diff on	8	1	40	°C
4131	F	Temp diff off	4	0	40	°C
4133	F	Comparative temp DHW sensor B3 ¦ DHW sensor B31 ¦ Buff st tank sensor B4 ¦ Buff st tank sensor B41 ¦ Flow temp setpoint ¦ Setpoin min	Setpoint min			
4140	O	Pump overrun time	20	0	120	min
4141	O	Excess heat discharge	90	60	140	°C
4170	O	Frost prot plant boiler pump Off ¦ On	Off			
Buffer storage tank						
4720	F	Auto generation lock None ¦ With B4 ¦ With B4 and B42/B41	With B4			-
4721	O	Auto heat generation lock SD	8	0	20	°C
4722	F	Temp diff buffer/HC	-5	-20	20	°C
4723	F	Temp diff buffer/CC	0	-20	20	°C
4724	F	Min st tank temp heat mode	– – –	– – – / 8	95	°C
4726	F	Max stor temp cooling mode	25	– – – / 10	40	°C
4739[4)]	F	Stratification protection Off ¦ Always ¦ With solid fuel boiler	Off			
4740[4)]	O	Stratif prot temp diff max	5	0	20	°C
4743[4)]	O	Stratiprot anticipation time	60	0	240	s
4744[4)]	O	Strat prot integr action time	120	10	200	s
4746[4)]	O	DHW protection combined Off ¦ On	Off			
4750	F	Charging temperature max	80	8	95	°C
4751	O	Storage tank temp max	90	8	95	°C
4755	F	Recooling temp	60	8	95	°C
4756	F	Recooling DHW/HCs Off ¦ On	Off			
4757	F	Recooling collector Off ¦ Summer ¦ Always	Off			
4783	F	With solar integration No ¦ Yes	No			
4790	F	Temp diff ON return div	10	0	40	°C
4791	F	Temp diff OFF return div	5	0	40	°C
4795	F	Compar temp return div B4 ¦ B41 ¦ B42	B42			
4796	F	Optg action return diversion Temp decrease ¦ Temp increase	Temp increase			
4800	F	Partial charging setpoint	– – –	– – – / 8	95	°C
4810	O	Full charging Off ¦ Heating mode ¦ Always	Off			
4811	O	Full charging temp min	8	8	80	°C
4813	O	Full charging sensor With B4 ¦ With B42/B41	With B42/B41			

Operating line	User level	Function	Default value	Min	Max	Unit
DHW storage tank						
5010	O	Charging Once/day ¦ Several times/day	Several times / day			
5020	F	Flow setpoint boost	16	0	30	°C
5021	F	Increase of transfer boost	8	0	30	°C
5022	F	Type of charging with B3 ¦ With B3 and B31 ¦ Legio B3 and B31	With B3 and B31			
5024	O	Switching differential	5	0	20	°C
5030	O	Charging time limitation	150	– – – / 10	600	min
5040	O	Discharging protection Off ¦ Always ¦ Automatically	Automatically			
5050	F	Charging temperature max	80	8	BZ 5051 OEM	°C
5051	O	Storage tank temp max	90	8	95	°C
5055	F	Recooling temp	80	8	95	°C
5056	F	Recooling heat gen/HCs Off ¦ On	Off			-
5057	F	Recooling collector Off ¦ Summer ¦ Always	Off			-
5060	F	electric immersion heater:operating mode Substitute ¦ Summer ¦ Always	Substitute			-
5061	F	Electric immersion heater release 24h/day ¦ DHW release¦ Time program4/ DHW	DHW release			-
5062	F	EI immersion heater control External thermostat ¦ DHW sensor	DHW sensor			-
5070	O	Automatic push Off ¦ On	On			
5071	O	Charging prio time push	0	0	120	min
5085	F	Excess heat draw Off ¦ On	On			-
5090	F	With buffer storage tank No ¦ Yes	No			
5092	F	With primary controller / system pump No ¦ Yes	No			
5093	F	With solar integration No ¦ Yes	Yes			
5101[6)]	F	Pump speed min	40	0	100	%
5102[6)]	F	Pump speed max	100	0	100	%
5103[6)]	O	Speed Xp	32	1	100	%
5104[6)]	O	Speed Tn	120	10	873	s
5120	O	Mixing valve boost	2	0	50	°C
5124	O	Actuator running time	120	30	873	s
5125	O	Mixing valve Xp	32	1	100	°C
5126	O	Mixing valve Tn	120	10	873	s
5130	O	Transfer strategy Always ¦ DHW release	Always			
5131	O	Comparison temp transfer DHW sensor B3 ¦ DHW sensor B31	DHW sensor B3			
Instantaneous DHW heater						
5406[6)]	F	Min setp diff to tank temp	4	0	20	°C
5544	F	Actuator running time	60	7.5	480	s
5545	O	Mixing valve Xp	20	1	200	°C
5546	O	Mixing valve Tn	150	10	873	s

Operating line	User level	Function	Default value	Min	Max	Unit
5547	O	Mixing valve Tv	4.5	0	30	s
Configuration						
5710	I	Heating circuit 1 Off ¦ On	On			-
5711 [4]	I	Cooling circuit 1 Off ¦ 4-pipe system ¦ 2-pipe system				
5712 [4]	I	Use of mixing valve 1 Heating ¦ Cooling ¦ Heating and cooling	Heating and cooling			
5715	I	Heating circuit 2 Off ¦ On	Off			-
5730	I	DHW sensor B3 Sensor ¦ Thermostat	Sensors			-
5731	I	DHW control element Q3 None ¦ Charging pump ¦ Diverting valve	Charging pump			-
5736	I	Separate circuit Off ¦ On	Off			-
5770	I	Source type 1-stage ¦ 2-stage[6] ¦ Modulating 3-position [6] ¦ Modulating UX[6] ¦ Without boiler sensor ¦ 2x1 cascade[6]	1-stage [4] 2-stage [6]			-
5840	I	Solar controlling element Charging pump ¦ Diverting valve	Charging pump			
5841	I	External solar exchanger Jointly ¦ DHW storage tank ¦ Buffer[6]	Jointly			
5890	I	Relay output QX1 None ¦ Circulating pump Q4 ¦ El imm heater DHW K6 ¦ Collector pump Q5 ¦ H1 pump Q15 ¦ Boiler pump Q1 ¦ Bypass pump Q12 ¦ Alarm output K10 ¦ 2nd pump speed HC1 Q21 ¦ 2nd pump speed HC2 Q22 ¦ 2nd pump speed HCP Q23 ¦ Heating circuit pump HCP Q20 ¦ H pump Q18 ¦ System pump Q14 ¦ Heat en shutoff valve Y4 ¦ Solid fuel boiler pump Q10 ¦Time program 5 K13 ¦ Buffer return valve Y15 ¦ Solar pump ext exch K9 ¦ Solar ctrl elem buffer K8 ¦ Solar ctrl elem swi pool K18 ¦ Collector pump 2 Q16 ¦ H3 pump Q19 ¦ Flue gas relay K17 ¦ Assisted firing fan K30 ¦ Cascade pump Q25 ¦ St ank transfer pump Q11 ¦ DHW mixing pump Q35 ¦ DHW intern circ pump Q33 ¦ Heat request K27 ¦ Refrig. request K28[4] ¦ Diverting valve, cooling Y21 [4]	None			-
5891 [6]	I	Relay output QX2 None ¦ Circulating pump Q4 ¦ El imm heater DHW K6 ¦ Collector pump Q5 ¦ H1 pump Q15 ¦ Boiler pump Q1 ¦ Bypass pump Q12 ¦ Alarm output K10 ¦ 2nd pump speed HC1 Q21 ¦ 2nd pump speed HC2 Q22 ¦ 2nd pump speed HCP Q23 ¦ Heating circuit pump HCP Q20 ¦ H pump Q18 ¦ System pump Q14 ¦ Heat en shutoff valve Y4 ¦ Solid fuel boiler pump Q10 ¦ Time program 5 K13 ¦ Buffer return valve Y15 ¦ Solar pump ext exch K9 ¦ Solar ctrl elem buffer K8 ¦ Solar ctrl elem swi pool K18 ¦ Collector pump 2 Q16 ¦ H3 pump Q19 ¦ Flue gas relay K17 ¦ Assisted firing fan K30 ¦ Cascade pump Q25 ¦ St tank transfer pump Q11 ¦ DHW mixing pump Q35 ¦ DHW intern circ pump Q33 ¦ Heat request K27 ¦ Refrig. request K28 ¦ Air dehumidif. K29 ¦ Diverting valve, cooling Y21	None			-
5892 [6]	I	Relay output QX3 None ¦ Circulating pump Q4 ¦ El imm heater DHW K6 ¦ Collector pump Q5 ¦ H1 pump Q15 ¦ Boiler pump Q1 ¦ Bypass pump Q12 ¦ Alarm output K10 ¦ 2nd pump speed HC1 Q21 ¦ 2nd pump speed HC2 Q22	None			

Operating line	User level	Function	Default value	Min	Max	Unit
		¦ 2nd pump speed HCP Q23 ¦ Heating circuit pump HCP Q20 ¦ H pump Q18 ¦ System pump Q14 ¦ Heat en shutoff valve Y4 ¦ Solid fuel boiler pump Q10 ¦Time program 5 K13 ¦ Buffer return valve Y15 ¦ Solar pump ext exch K9 ¦ Solar ctrl elem buffer K8 ¦ Solar ctrl elem swi pool K18 ¦ Collector pump 2 Q16 ¦ H3 pump Q19 ¦ Flue gas relay K17 ¦ Assisted firing fan K30 ¦ Cascade pump Q25 ¦ St tank transfer pump Q11 ¦ DHW mixing pump Q35 ¦ DHW intern circ pump Q33 ¦ Heat request K27 ¦ Refrig. request K28 ¦ Air ehumidif. K29 ¦ Diverting valve, cooling Y21				
5894 [6)]	I	Relay output QX4 None ¦ Circulating pump Q4 ¦ El imm heater DHW K6 ¦ Collector pump Q5 ¦ H1 pump Q15 ¦ Boiler pump Q1 ¦ Bypass pump Q12 ¦ Alarm output K10 ¦ 2nd pump speed HC1 Q21 ¦ 2nd pump speed HC2 Q22 ¦ 2nd pump speed HCP Q23 ¦ Heating circuit pump HCP Q20 ¦ H pump Q18 ¦ System pump Q14 ¦ Heat en shutoff valve Y4 ¦ Solid fuel boiler pump Q10 ¦Time program 5 K13 ¦ Buffer return valve Y15 ¦ Solar pump ext exch K9 ¦ Solar ctrl elem buffer K8 ¦ Solar ctrl elem swi pool K18 ¦ Collector pump 2 Q16 ¦ H3 pump Q19 ¦ Flue gas relay K17 ¦ Assisted firing fan K30 ¦ Cascade pump Q25 ¦ St tank transfer pump Q11 ¦ DHW mixing pump Q35 ¦ DHW intern circ pump Q33 ¦ Heat request K27 ¦ Refrig. request K28 ¦ Air dehumidify. K29 ¦ Diverting valve, cooling Y21	None			
5930	I	Sensor input BX1 None ¦ DHW sensor B31 ¦ Collector sensor B6 ¦ Return sensor B7 ¦ DHW circulation sensor B39 ¦ Buffer st tank sensor B4 ¦ Buffer st tank sensor B41 ¦ Flue gas temp sensor B8 ¦ Common flow sensor B10 ¦ Solid fuel boiler sensor B22 ¦ DHW charging sensor B36 ¦ Buffer sensor B42 ¦ Common return sensor B73 ¦ Cascade return sensor B70 ¦ Swimming pool sensor B13 ¦ Collector sensor 2 B61 ¦ Solar flow sensor B63 ¦ Solar return sensor B64	None			-
5931	I	Sensor input BX2 None ¦ DHW sensor B31 ¦ Collector sensor B6 ¦ Return sensor B7 ¦ DHW circulation sensor B39 ¦ Buffer st tank sensor B4 ¦ Buffer st tank sensor B41 ¦ Flue gas temp sensor B8 ¦ Common flow sensor B10 ¦ Solid fuel boiler sensor B22 ¦ DHW charging sensor B36 ¦ Buffer sensor B42 ¦ Common return sensor B73 ¦ Cascade return sensor B70 ¦ Swimming pool sensor B13 ¦ Collector sensor 2 B61 ¦ Solar flow sensor B63 ¦ Solar return sensor B64	None			-
5932 [6)]	I	Sensor input BX3 None ¦ DHW sensor B31 ¦ Collector sensor B6 ¦ Return sensor B7 ¦ DHW circulation sensor B39 ¦ Buffer st tank sensor B4 ¦ Buffer st tank sensor B41 ¦ Flue gas temp sensor B8 ¦ Common flow sensor B10 ¦ Solid fuel boiler sensor B22 ¦ DHW charging sensor B36 ¦ Buffer sensor B42 ¦ Common return sensor B73 ¦ Cascade return sensor B70 ¦ Swimming pool sensor B13 ¦ Collector sensor 2 B61 ¦ Solar flow sensor B63 ¦ Solar return sensor B64	None			
5933 [6)]	I	Sensor input BX4 None ¦ DHW sensor B31 ¦ Collector sensor B6 ¦ Return sensor B7 ¦ DHW circulation sensor B39 ¦ Buffer st tank sensor B4 ¦ Buffer st tank sensor B41 ¦ Flue gas temp sensor B8 ¦ Common flow sensor B10 ¦ Solid fuel boiler sensor B22 ¦ DHW charging sensor	None			

Operating line	User level	Function	Default value	Min	Max	Unit
		B36 ¦ Buffer sensor B42 ¦ Common return sensor B73 ¦ Cascade return sensor B70 ¦ Swimming pool sensor B13 ¦ Collector sensor 2 B61 ¦ Solar flow sensor B63 ¦ Solar return sensor B64				
5950	I	Function of input H1 Optg mode changeover HCs + DHW ¦ Optg mode changeover HCs ¦ Optg mode changeover HC1 ¦ Optg mode changeover HC2 ¦ Optg mode changeover HCP ¦ Heat generation lock ¦ Error/alarm message ¦ Min flow temp setpoint ¦ Excess heat discharge ¦ Release sw pool ¦ Swimming pool ¦ Dewpoint monitor ¦ Flow setp increase hygro ¦ Refrig demand ¦ Heat request 10V ¦ Refrig. demand 10V ¦ Pressure measurement 10V ¦ Rel. room humidity 10V ¦ Room temperature 10V	Optg mode changeover HCs+DHW			-
5951	I	Contact type H1 NC ¦ NO	NO			-
5952[4)]	I	Function value, contact type H1	70	8	130	°C
5952[6)]		Min flow temp setpoint H1	70	8	120	°C
5953[4)]	I	Voltage value 1, H1	0	0	10	Volt
5954[4)]	I	Function value 1, H1	0	-100	500	-
5954[6)]		Temp value 10V H1	100	5	130	°C
5955[4)]	I	Voltage value 2, H1	10	0	10	Volt
5956[4)]	I	Function value 2, H1	70	-100	500	-
5956[6)]		Pressure value 3.5V H1	5.0	0.0	10.0	bar
5960[6)]	I	Function input H3 Optg mode change HCs+DHW ¦ Optg mode changeover HCs ¦ Optg mode changeover HC1 ¦ Optg mode changeover HC2 ¦ Optg mode changeover HCP ¦ Heat generation lock ¦ Error/alarm message ¦ Min flow temp setpoint ¦ Excess heat discharge ¦ Release swimming pool ¦ Heat request 10V ¦ Pressure measurement 10V	Optg mode changeover HCs+DHW			-
5961[6)]	I	Contact type H3 NC ¦ NO	NO			-
5962[6)]	I	Min flow temp setpoint H3	70	8	120	°C
5964[6)]	I	Temp value 10V H3	100	5	130	°C
5966[6)]	I	Pressure value 3.5V H3	5.0	0.0	10.0	bar
5982[6)]	I	Function input EX2 Counter 2nd burner stage ¦ Heat generation lock ¦ Error/alarm message ¦ SLT error message ¦ Excess heat discharge	Counter for second burner stage			-
5983[6)]	I	Cont type input EX2 NC ¦ NO	NO			-
6014	I	Function mixing group 1 Heating circuit 1 ¦ Return temp controller ¦ Prim contr/system pump ¦ DHW primary controller ¦ Instantaneous DHW heater ¦ Return controller cascade ¦ Cooling circuit 1[4)] ¦ Heating circuit / Cooling circuit 1[4)]	Heating circuit			-
6015[6)]	I	Function mixing group 2 Heating circuit 2 ¦ Return temp controller ¦ Prim contr/system pump ¦ DHW primary controller ¦ Instantaneous DHW heater ¦ Return controller cascade				
6020	I	Function extension module 1 None ¦ Multifunctional ¦ Heating circuit 2 ¦ Return temp controller ¦ Solar DHW ¦ Prim contr/system pump ¦ DHW primary controller ¦ Instantaneous DHW heater ¦ Return controller cascade ¦ Cooling circuit 1[4)]	None			-

Operating line	User level	Function	Default value	Min	Max	Unit
6021	I	Function extension module 2 None ¦ Multifunctional ¦ Heating circuit 2 ¦ Return temp controller ¦ Solar DHW ¦ Prim contr/system pump ¦ DHW primary controller ¦ Instantaneous DHW heater ¦ Return controller cascade ¦ Cooling circuit 1 [4)]	None			-
6030	I	Relay output QX21 None ¦ Circulating pump Q4 ¦ El imm heater DHW K6 ¦ Collector pump Q5 ¦ H1 pump Q15 ¦ Boiler pump Q1 ¦ Bypass pump Q12 ¦ Alarm output K10 ¦ 2nd pump speed HC1 Q21 ¦ 2nd pump speed HC2 Q22 ¦ 2nd pump speed HCP Q23 ¦ Heat circuit pump HCP Q20 ¦ H2 pump Q18 ¦ System pump Q14 ¦ Heat gen shutoff valve Y4 ¦ Solid fuel boiler pump Q10 ¦ Time program 5 K13 ¦ Buffer return valve Y15 ¦ Solar pump ext exch K9 ¦ Solar ctrl elem buffer K8 ¦ Solar ctrl elem swi pool K18 ¦ Collector pump 2 Q16 ¦ H3 pump Q19 [6)] ¦ Flue gas relay K17 ¦ Assisted firing fan K30 ¦ Cascade pump Q25 ¦ St tank transfer pump Q11 ¦ DHW mixing pump Q35 ¦ DHW interm circ pump Q33 ¦ Heat request K27 ¦ Refrig. request K28 [4)] ¦ Air dehumidif. K29[4)] ¦ Diverting valve, cooling Y21 [4)]	None			
6031	I	Relay output QX22 None ¦ Circulating pump Q4 ¦ El imm heater DHW K6 ¦ Collector pump Q5 ¦ H1 pump Q15 ¦ Boiler pump Q1 ¦ Bypass pump Q12 ¦ Alarm output K10 ¦ 2nd pump speed HC1 Q21 ¦ 2nd pump speed HC2 Q22 ¦ 2nd pump speed HCP Q23 ¦ Heat circuit pump HCP Q20 ¦ H2 pump Q18 ¦ System pump Q14 ¦ Heat gen shutoff valve Y4 ¦ Solid fuel boiler pump Q10 ¦ Time program 5 K13 ¦ Buffer return valve Y15 ¦ Solar pump ext exch K9 ¦ Solar ctrl elem buffer K8 ¦ Solar ctrl elem swi pool K18 ¦ Collector pump 2 Q16 ¦ H3 pump Q19 [6)] ¦ Flue gas relay K17 ¦ Assisted firing fan K30 ¦ Cascade pump Q25 ¦ St tank transfer pump Q11 ¦ DHW mixing pump Q35 ¦ DHW interm circ pump Q33 ¦ Heat request K27 ¦ Refrig. request K28[4)] ¦ Air dehumidif. K29[4)] ¦ Diverting valve, cooling Y21[4)]	None			
6032	I	Relay output QX23 None ¦ Circulating pump Q4 ¦ El imm heater DHW K6 ¦ Collector pump Q5 ¦ H1 pump Q15 ¦ Boiler pump Q1 ¦ Bypass pump Q12 ¦ Alarm output K10 ¦ 2nd pump speed HC1 Q21 ¦ 2nd pump speed HC2 Q22 ¦ 2nd pump speed HCP Q23 ¦ Heat circuit pump HCP Q20 ¦ H2 pump Q18 ¦ System pump Q14 ¦ Heat gen shutoff valve Y4 ¦ Solid fuel boiler pump Q10 ¦ Time program 5 K13 ¦ Buffer return valve Y15 ¦ Solar pump ext exch K9 ¦ Solar ctrl elem buffer K8 ¦ Solar ctrl elem swi pool K18 ¦ Collector pump 2 Q16 ¦ H3 pump Q19 [6)] ¦ Flue gas relay K17 ¦ Assisted firing fan K30 ¦ Cascade pump Q25 ¦ St tank transfer pump Q11 ¦ DHW mixing pump Q35 ¦ DHW interm circ pump Q33 ¦ Heat request K27 ¦ Refrig. request K28 [4)] ¦ Air dehumidif. K29[4)] ¦ Diverting valve, cooling Y21 [4)]	None			
6040	I	Sensor input BX21 None ¦ DHW sensor B31 ¦ Collector sensor B6 ¦ Return sensor B7 ¦ DHW circulation sensor B39 ¦ Buffer sensor B4 ¦ Buffer sensor B41 ¦ Flue gas temp sensor B8 ¦ Common flow sensor B10 ¦ Solid fuel boiler sensor B22 ¦ DHW charging sensor B36 ¦ Buffer sensor B42 ¦ Common return sensor B73 ¦ Cascade return sensor B70 ¦ Swimming pool sensor B13 ¦ Collector sensor 2 B61 ¦ Solar flow sensor B63 ¦ Solar return sensor B64	None			
6041	I	Sensor input BX22 None ¦ DHW sensor B31 ¦ Collector sensor B6 ¦ Return sensor B7 ¦ DHW circulation sensor B39 ¦ Buffer sensor	None			

Operating line	User level	Function	Default value	Min	Max	Unit
		B4 ¦ Buffer sensor B41 ¦ Flue gas temp sensor B8 ¦ Common flow sensor B10 ¦ Solid fuel boiler sensor B22 ¦ DHW charging sensor B36 ¦ Buffer sensor B42 ¦ Common return sensor B73 ¦ Cascade return sensor B70 ¦ Swimming pool sensor B13 ¦ Collector sensor 2 B61 ¦ Solar flow sensor B63 ¦ Solar return sensor B64				
6046	I	Function of input H2 Optg mode changeover HCs + DHW ¦ Optg mode changeover HCs ¦ Optg mode changeover HC1 ¦ Optg mode changeover HC2 ¦ Optg mode changeover HCP ¦ Heat generation lock ¦ Error/alarm message ¦ Min flow temp setpoint ¦ Excess heat discharge ¦ Swimming pool enable ¦ Dewpoint monitor [4] ¦ Flow temp. setpt increase, hygro [4] ¦ Refrig request [4] ¦ Heat request 10V ¦ Refrig. request 10V [4] ¦ Pressure measurement 10V ¦ Rel. room humidity 10V [4] ¦ Room temperature 10V [4]	Optg mode changeover HCs+DHW			
6047	I	Contact type H2 NC ¦ NO	NO			-
6048[4]	I	Function value, contact H2	70	8	130	°C
6048[6]	I	Min flow temp setpoint H2	70	8	120	°C
6049[4]	I	Voltage value 1, H2	0	0	10	Volt
6050[4]	I	Function value 1, H2	0	-100	500	-
6050[6]	I	Temp value 10V H2	100	5	130	°C
6051[4]	I	Voltage value 2, H2	10	0	10	Volt
6052[4]	I	Function value 2, H2	70	-100	500	-
6052[6]		Pressure value 3.5V H2	5.0	0.0	10.0	bar
6070[6]	I	Function output UX None ¦ Boiler pump Q1 ¦ DHW pump Q3 ¦ DHW interm circ pump Q33 ¦ Heat circ pump HC1 Q2 ¦ Heat circ pump HC2 Q6 ¦ Heat circ pump HCP Q20 ¦ Collector pump Q5 ¦ Solar pump ext exch K9 ¦ Solar pump buffer K8 ¦ Solar pump swi pool K18 ¦ Collector pump 2 Q16 ¦ Boiler setpoint ¦ Output setpoint ¦ Heat request	None			
6071[6]	I	Signal logic output UX Standard ¦ Inverted	Standard			
6075[6]	I	Temperature value 10V UX	100	5	130	°C
6097	F	Sensor type collector NTC 10k ¦ Platinum 1000	NTC 10k			
6098	F	Readjustm collector sensor	0	-20	20	°C
6099	F	Readjustm coll sensor 2	0	-20	20	°C
6100	F	Readjustm outside sensor	0	-3.0	3.0	°C
6101	F	Sensor type flue gas temp NTC 10k ¦ Platinum 1000	NTC 10k			
6102	F	Readjustm flue gas sensor	0	-20	20	°C
6110	F	Time constant building	15	0	50	h
6112	O	Gradient room model	60	0	300	Min/°C
6116[4]	O	Time constant setp compens	10	0	14	min
6117	O	Central setp compensation	20	– – – / 1	100	°C
6118	O	Setpoint drop delay	60	– – – / 1	200	k/min
6120	F	Frost protection for the plant Off ¦ On	Off			-
6128	F	Heat request below OT	– – –	– – – / -50	50	°C
6129	F	Heat request above OT	– – –	– – – / -50	50	°C

Operating line	User level	Function	Default value	Min	Max	Unit
6131	F	Heat req in economy mode Off ¦ On DHW ¦ On	Off			
6135	F	Air dehumidifier Off ¦ On	Off			
6136	F	Air dehumidifier enable 24h/day ¦ Time progr. heating circuit ¦ Time program 5	24 h/day			
6137	F	Air dehumidifier r.h. ON	55	0	100	%
6138	F	Air dehumidifier r.h. SD	5	2	50	%
6140	O	Water pressure max	– – –	– – – / 0.0	10.0	bar
6141	O	Water pressure min	– – –	– – – / 0.0	10.0	bar
6142	O	Water pressure critical min	– – –	– – – / 0.0	10.0	bar
6150	O	Water pressure 2 max	– – –	– – – / 0.0	10.0	bar
6151	O	Water pressure 2 min	– – –	– – – / 0.0	10.0	bar
6152	O	Water press 2 critical min	– – –	– – – / 0.0	10.0	bar
6180[6)]	O	Water pressure 3 max	– – –	– – – / 0.0	10.0	bar
6181[6)]	O	Water pressure 3 min	– – –	– – – / 0.0	10.0	bar
6182[6)]	O	Water press 3 critical min	– – –	– – – / 0.0	10.0	bar
6200	I	Save sensors No ¦ Yes	No			-
6204	O	Save parameters No ¦ Yes	No			
6205	F	Reset to default parameters No ¦ Yes	No			-
6212	I	Check-No. heat source 1	-	0	199999	-
6213	I	Check-No. heat source 2	-	0	199999	-
6215	I	Check-No. storage tank	-	0	199999	-
6217	I	Check-No. heating circuits	-	0	199999	-
6220	F	Software version	-	0	99.9	-
6222	O	Device hours run	0	0	65535	h
LPB system						
6600	I	Device address	1	0	16	-
6601	F	Segment address	0	0	14	-
6604	F	Bus power supply function Off ¦ Automatically	Automatically			-
6605	F	Bus power supply state Off ¦ On	On			-
6610	O	Display system messages No ¦ Yes	Yes			
6612	O	Alarm delay	– – –	– – – / 2	60	min
6620	F	Action changeover functions Segment ¦ System	System			-
6621	F	Summer changeover Locally¦ Centrally	Locally			-
6623	F	Optg mode changeover Locally¦ Centrally	Centrally			
6624	F	Manual source lock Locally ¦ Segment	Locally			
6625	F	Assignment of DHW heating Local HCs ¦ All HCs in segment ¦ All HCs in system	All HCs in system			-
6627[4)]	F	Refrigeration demand Locally¦ Centrally	Locally			

Operating line	User level	Function	Default value	Min	Max	Unit
6630	O	Cascade master Always ¦ Automatically	Automatically			
6631	F	Ext source with eco mode Off ¦ On DHW ¦ On	Off			
6640	I	Clock mode Autonomously ¦ Slave without remote ¦ Slave with remote setting ¦ Master	Autonomously			-
6650	F	Outside temp source	0	0	239	-
Errors						
6710	I	Reset alarm relay No ¦ Yes	No			-
6740	F	Flow temp 1 alarm	– – –	– – – / 10	240	min
6741	F	Flow temp 2 alarm	– – –	– – – / 10	240	min
6743	F	Boiler temp alarm	– – –	– – – / 10	240	min
6745	F	DHW charging alarm	– – –	– – – / 1	48	h
6746[4)]	F	Flow temp alarm, cooling 1	– – –	– – – / 10	240	min
6800	F	History 1	-			
	F	Error code 1	-	0	255	-
6802	F	History 2	-			
	F	Error code 2	-	0	255	-
6804	F	History 3	-			
	F	Error code 3	-	0	255	-
6806	F	History 4	-			
	F	Error code 4	-	0	255	-
6808	F	History 5	-			
	F	Error code 5	-	0	255	-
6810	F	History 6	-			
	F	Error code 6	-	0	255	-
6812	F	History 7	-			
	F	Error code 7	-	0	255	-
6814	F	History 8	-			
	F	Error code 8	-	0	255	-
6816	F	History 9	-			
	F	Error code 9	-	0	255	-
6818	F	History 10	-			
	F	Error code 10	-	0	255	-
6820	O	Reset history No ¦ Yes	No			-
Maintenance / special operation						
7040	F	Burner hours interval	– – –	– – – / 10	10000	h
7041	F	Burner hrs since maintenance	0	0	10000	h
7042	F	Burner start interval	– – –	– – – / 60	65535	-
7043	F	Burn starts since maint	0	0	65535	-
7044	F	Maintenance interval	– – –	– – – / 1	240	Months
7045	F	Time since maintenance	0	0	240	Months
7053	F	Flue gas temp limit	– – –	– – – / 0	350	°C
7054	F	Delay flue gas message	0	0	120	min

Operating line	User level	Function	Default value	Min	Max	Unit
7119	F	Economy function Locked ¦ released	Locked			-
7120	E	Economy mode Off ¦ On	Off			-
7130	E	Chimney sweep function Off ¦ On	Off			-
7140	E	manual operation Off ¦ On	Off			-
7150	I	Simulation outside temperature	-	-50.0	50	°C
7170	I	Telephone customer service				-
Input / output test						
7700	I	Relay test No test ¦ Everything off ¦ 1st burner stage T2 ¦ 1st + 2nd burn stage T2/QX4 [6] ¦ DHW pump Q3 ¦ Heating circuit pump Q2 ¦ Heat circ mix valve op Y1 ¦ Heat circ mix valve cl Y2 ¦ Heating circuit pump Q6 [6] ¦ Heat circ mix valve op Y5 [6] ¦ Heat circ mix valve cl Y6[6] ¦ Relay output QX1 ¦ Relay output QX2 [6] ¦ Relay output QX3 [6] ¦ Relay output QX4 [6] ¦ Relay output QX21 module 1 ¦ Relay output QX22 module 1 ¦ Relay output QX23 module 1 ¦ Relay output QX21 module 2 ¦ Relay output QX22 module 2 ¦ Relay output QX23 module 2	No test			-
7710[6]	I	Output test UX	-	0	100	%
7711[6]	I	Voltage signal UX	0	0	10	Volt
7730	I	Outside temp B9	-	-50.0	50	°C
7732	I	Flow temp B1	-	0.0	140	°C
7734[6]	I	Flow temp B12	-	0.0	140	°C
7750	I	DHW temp B3	-	0.0	140	°C
7760	I	Boiler temp B2	-	0.0	140	°C
7820	I	Sensor temp BX1	-	-28.0	350	°C
7821	I	Sensor temp BX2	-	-28.0	350	°C
7822[6]	I	Sensor temp BX3	0	-28	350	°C
7823[6]	I	Sensor temp BX4	0	-28	350	°C
7830	I	Sensor temp BX21 module 1	0	-28	350	°C
7831	I	Sensor temp BX22 module 1	0	-28	350	°C
7832	I	Sensor temp BX21 module 2	0	-28	350	°C
7833	I	Sensor temp BX22 module 2	0	-28	350	°C
7840	I	Voltage signal H1	-	0	10	Volt
7841	I	Contact state H1 Open ¦ Closed	-			-
7845	I	Voltage signal H2	0	0	10	°C
7846	I	Contact state H2 Open ¦ Closed	-			-
7854[6]	I	Voltage signal H3	0	0	10	Volt
7855[6]	I	Contact state H3 Open ¦ Closed	-			
7870	I	Burner fault S3 0V ¦ 230V	-			-
7881	I	1. 1st burner stage E1 0V ¦ 230V	-			
7912[6]	I	Input EX2 0V ¦ 230V	-			

Operating line	User level	Function	Default value	Min	Max	Unit
State						
8000	I	State of heating circuit 1	-			-
8001	I	State of heating circuit 2	-			-
8002	I	State heating circuit P	-			-
8003	I	State of DHW	-			-
8005	I	State of boiler	-			-
8007	I	State of solar	-			-
8008	I	State solid fuel boiler	-			
8010	I	State buffer storage tank	-			
8011	I	State swimming pool	-			
Diagnostics cascade						
8100 through 8130	I	Priority source 1…16				
8101 through 8131	I	State source 1...16 Missing ¦ Faulty ¦ Manual control active ¦ Heat generation lock active ¦ Chimney sweep funct active ¦ Separate DHW circuit active ¦ Ouside temp limit active ¦ Not released ¦ Released				
8138	I	Cascade flow temp	0	0	140	°C
8139	I	Cascade flow temp setpoint	0	0	140	°C
8140	I	Cascade return temp	0	0	140	°C
8141	I	Cascade return temp setp	0	0	140	°C
8150	I	Source seq ch'over current	0	0	990	h
Diagnostics, heat generation						
8300	I	1. 1st burner stage T2 Off ¦ On	-			-
8301[6)]	I	2. 2nd burner stage Off ¦ On	-			-
8308[6)]	F	Boiler pump speed	0	0	100	%
8310	I	Boiler temperature	-	0.0	140.0	°C
8311	I	Boiler setpoint	-	0.0	140.0	°C
8312	I	Boiler switching point	0	0	140	°C
8314	I	Boiler return temp	-	0.0	140.0	°C
8315	I	Boiler return temp setpoint	0	0	140	°C
8316	I	Flue gas temp	0	0	350	°C
8318	I	Flue gas temp max	0	0	350	°C
8326	I	Burner modulation	0	0	100	%
8330	F	Hours run 1st stage	0	0	65535	h
8331	F	Start counter 1st stage	-	0	199'999	-
8332[6)]	F	Hours run 2nd stage	0	0	65535	h
8333[6)]	F	Start counter 2nd stage	0	0	199999	-
8505[6)]	F	Speed collector pump 1	0	0	100	%
8506[6)]	F	Speed solar pump ext exch	0	0	100	%
8507[6)]	F	Speed solar pump buffer	0	0	100	%

Operating line	User level	Function	Default value	Min	Max	Unit
8508[6)]	F	Speed solar pump swi pool	0	0	100	%
8510	I	Collector temp 1	-	-28.0	350	°C
8511	I	Collector temp 1 max	0	-28.0	350	°C
8512	I	Collector temp 1 min	0	-28.0	350	°C
8513	I	dT collector 1/DHW	-	-168.0	350	°C
8514	I	dT collector 1/buffer	-	-168.0	350	°C
8515	I	dt collector 1/swimming pool	0	-168.0	350	°C
8519	I	Solar flow temp	0	-28.0	350	°C
8520	I	Solar return temp	0	-28.0	350	°C
8526	E	24-hour yield solar energy	0	0	999.9	kWh
8527	E	Total yield solar energy	0	0	9999999.9	kWh
8530	F	Hours run solar yield	-	0	65535	h
8531	F	Hours run collect overtemp	-	0	65535	h
8543[6)]	F	Speed collector pump 2	0	0	100	%
8547	I	Collector temp 2	0	-28	350	°C
8548	I	Collector temp 2 max	-28	-28	350	°C
8549	I	Collector temp 2 min	3500	-28	350	°C
8550	I	dT collector 2/DHW	0	-168	350	°C
8551	I	dT collector 2/buffer	0	-168	350	°C
8552	I	dt collector 2/swimming pool	0	-168	350	°C
8560		Solid fuel boiler temp	0	0	140	°C
8570	E	Hours run solid fuel boiler	0	0	65535	h
Diagnostics, consumers						
8700	I	Outside temperature (OT)	-	-50.0	50.0	°C
8703	I	Outside temp attenuated	-	-50.0	50.0	°C
8704	I	Outside temperature composite	-	-50.0	50.0	°C
8720[4)]	I	Relative room humidity	-	0	100	%
8721[4)]	I	Outside temperature (OT)	-	0	50.0	°C
8722[4)]	I	Dewpoint temperature 1	-	0	50.0	°C
8730	I	Heating circuit pump Q2 Off ¦ On	-			-
8731	I	Heating circ mix valve op Y1 Off ¦ On	-			-
8732	I	Heat circ mix valve cl Y2 Off ¦ On	-			-
8735[6)]	F	Speed heating circuit pump 1	0	0	100	%
8740	I	Room temp 1	-	0.0	50.0	°C
8741	I	Room setpoint 1	-	4.0	35.0	°C
8742	O	Room temp 1 model	-	0.0	50.0	°C
8743	I	Flow temperature 1	-	0.0	140.0	°C
8744	I	Flow temp setpoint 1	-	0.0	140.0	°C
8751[4)]	I	Cooling circuit pump 1 Off ¦ On	-			
8752[4)]	I	Cooling circuit mixing valve 1 Open Off ¦ On	-			
8753[4)]	I	Cooling circuit mixing valve 1 Closed Off ¦ On	-			
8754[4)]	I	Cooling diverting valve 1 Off ¦ On	-			
8756[4)]	I	Flow temperature, cooling 1	-	0	140	°C

Operating line	User level	Function	Default value	Min	Max	Unit
8757[4)]	I	Flow temperature, cooling 1	-	0	140	°C
8760	I	Heating circuit pump 2 Off ¦ On	-			-
8761	I	Heat circ mix valve 2 open Off ¦ On	-			-
8762	I	Heat circ mix valve 2 close Off ¦ On	-			-
8765[6)]	F	Speed heating circuit pump 2	0	0	100	%
8770	I	Room temp 2	-	0.0	50	°C
8771	I	Room setpoint 2	-	4.0	35	°C
8772	O	Room temp 2 model	-	0.0	50	°C
8773	I	Flow temperature 2	-	0.0	140	°C
8774	I	Flow temp setpoint 2	-	0.0	140	°C
8795[6)]	F	Speed heating circuit pump B	0	0	100	%
8800	I	Room temp P	-	0.0	50	°C
8801	I	Room setpoint P	-	4.0	35	°C
8802	O	Room temp P model	-	0.0	50	°C
8803	I	Flow temp setpoint P	-	0.0	140	°C
8820	I	DHW pump Q3 Off ¦ On	-			-
8825[6)]	F	Speed DHW pump	0	0	100	%
8826[6)]	F	Speed DHW interm circ pump	0	0	100	%
8830	I	DHW temp 1	-	0.0	140	°C
8831	I	DHW temp setpoint	-	8.0	80	°C
8832	I	DHW temp 2	-	0.0	140	°C
8835	I	DHW circulation temp	-	0.0	140	°C
8836	I	DHW charging temp	0	0	140	°C
8850	I	DHW primary controller temp	0	0	140	°C
8851	I	DHW primary controller setp	0	0	140	°C
8852	I	Instant DHW heater temp	0	0	140	°C
8853	I	Instant DHW heater setpoint	0	0	140	°C
8900	I	Swimming pool temp	0	0	140	°C
8901	I	Swimming pool setpoint	24	8	80	°C
8930	I	Primary controller temp	-	0.0	140.0	°C
8931	I	Primary controller setpoint	-	0.0	140.0	°C
8950	I	Common flow temp	-	0.0	140.0	°C
8951	I	Common flow temp setpoint	-	0.0	140.0	°C
8952	I	Common return temp	0	0	140	°C
8957[4)]	I	Common flow temp setpoint refrig	0	0	140	°C
8962	I	Common output setpoint	0	0	100	%
8980	I	Buffer temp 1	-	0.0	140.0	°C
8981	I	Buffer setpoint	0	0	140	°C
8982	I	Buffer temp 2	-	0.0	140.0	°C
8983	I	Buffer temp 3	0	0	140	°C
9000	I	Flow temperature setpoint H1	-	5.0	130.0	°C
9001	I	Flow temp setpoint H2	-	5.0	130.0	°C
9004[6)]	I	Flow temp setpoint H3	8	8	120	°C
9005	I	Water pressure H1	-	0.0	10.0	bar
9006	I	Water pressure H2	-	0.0	10.0	bar

Operating line	User level	Function	Default value	Min	Max	Unit
9009[6)]	I	Water pressure H3	0	0	10	bar
9031	I	Relay output QX1 Off ¦ On	-			-
9032[6)]	I	Relay output QX2 Off ¦ On	-			-
9033[6)]	I	Relay output QX3 Off ¦ On	-			-
9034[6)]	I	Relay output QX4 Off ¦ On				
9050	I	Relay output QX21 module 1 Off ¦ On	-			-
9051	I	Relay output QX22 module 1 Off ¦ On	-			-
9052	I	Relay output QX23 module 1 Off ¦ On	-			-
9053	I	Relay output QX21 module 2 Off ¦ On	-			-
9054	I	Relay output QX22 module 2 Off ¦ On	-			-
9055	I	Relay output QX23 module 2 Off ¦ On	-			-

2 The settings in detail

2.1 Operator unit

Operation and display

Line no.	*Operating line*
21	**Display special operation** Off On
30	**Save basic settings** No Yes
31	**Activate basic settings** No Yes

Save basic settings

The setting data of all operating levels are copied from the controller to the memory of the operator unit. This means that previous data in the operator unit are overwritten.

Activate basic settings

With the exception of the data listed below, the setting data of all operating levels are transferred from the memory of the operator unit to the connected controller. Previous setting data in the controller are overwritten.

The following operating lines will not be overwritten:

Line no.	*Operating line*
6600	Device address
6601	Segment address
6222	Device hours run

The following data will not be overwritten either:
RF list, hours run / start counter, yield meter, maintenance meter, slave pointer, and error history.

2.2 Heating circuits

Mixing valve control

Line no.				*Operating line*
HC1	HC2	HC3P		
835	**1135**			**Mixing valve Xp**
836	**1136**			**Mixing valve Tn**

Mixing valve Xp

By setting the right proportional band, the control action of the mixing valve actuator is matched to the behavior of the plant (controlled system).

Xp influences the P-action of the controller.

Mixing valve Tn

By setting the right integral action time, the control action of the mixing valve actuator is matched to the behavior of the plant (controlled system).

Tn influences the I-action of the controller.

RVS43..only

2.3 Cooling circuit

Mixing valve control

Line no.	*Operating line*
942	**Mixing valve Xp**
943	**Mixing valve Tn**

Mixing valve Xp

By setting the right proportional band, the control action of the mixing valve actuator is matched to the behavior of the plant (controlled system).

Xp influences the P-action of the controller.

Mixing valve Tn

By setting the right integral action time, the control action of the mixing valve actuator is matched to the behavior of the plant (controlled system).

Tn influences the I-action of the controller.

2.4 DHW

Setpoints

Line no.	*Operating line*
1614	**Nominal setpoint max**

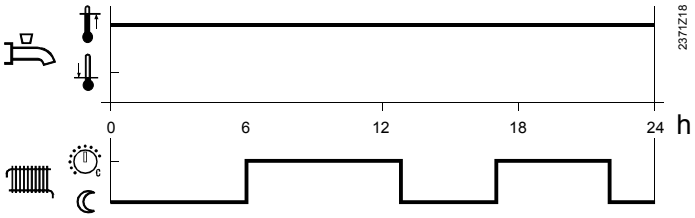
This operating line is used to limit the “Nominal setpoint“ (operating line 1610) at the top.

Release

Line no.	*Operating line*
1620	**Release** 24 h/day Time programs HCs Time program 4/DHW

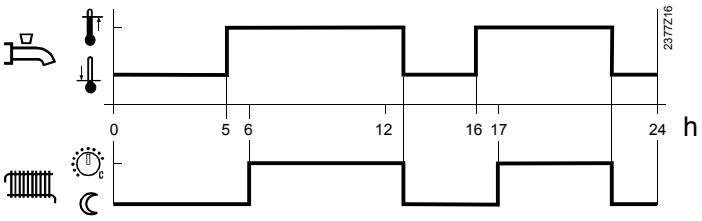
24 h/day
The DHW temperature is constantly maintained at the nominal DHW setpoint, independent of any time programs.

Example:



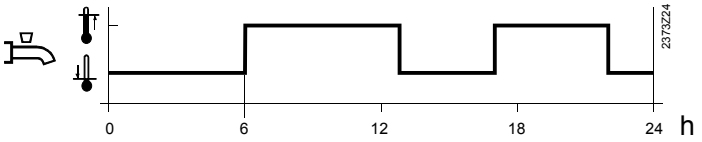
Time programs HCs
The DHW setpoint is switched between the nominal DHW setpoint and the reduced DHW setpoint according to the heating circuits’ time programs. The first switch-on point of each period is shifted forward in time by one hour.

Example:



Time program 4/DHW
For DHW heating, time program 4 of the local controller is taken into consideration. The set switching times of that program are used to switch between the nominal DHW setpoint and the reduced DHW setpoint. This way, the DHW is heated independently of the heating circuits.

Example:



2.5 Pumps H

Pump Hx

Line no.				*Operating line*
H1	H2	H3		
2008	**2033**	**2044**		**H1/H2/H3 DHW charging priority** Off ¦ On

H1/H2/H3 DHW charging priority

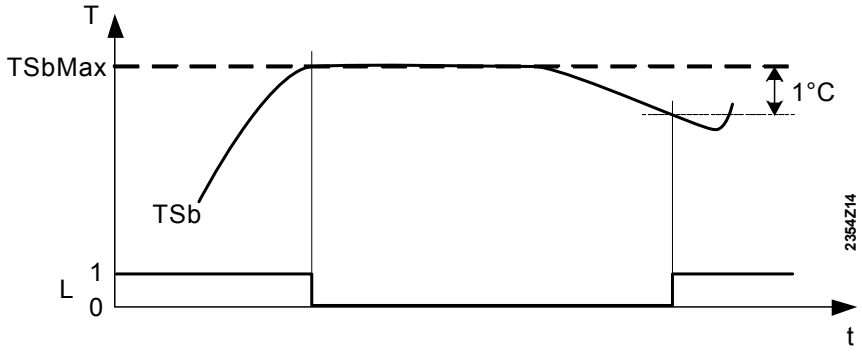
When using this setting, the connected pump H can be excluded from / included in the effect of DHW charging priority.
In the case of a ventilation system, for example, it is thus possible to ensure a constant supply of heat with no impact from the DHW charging priority.

2.6 Swimming pool

Line no.	*Operating line*
2070	**Swimming pool temp max**

Swimming pool temp max

If the swimming pool temperature reaches the temperature limit set here, the collector pump is deactivated. It is released again when the swimming pool temperature has dropped 1 °C below the maximum temperature limit.



TSbMax Swimming pool temp max (operating line 5051)
TSb actual value of the swimming pool temperature
L Storage tank charging: 1 = on, 0 = off

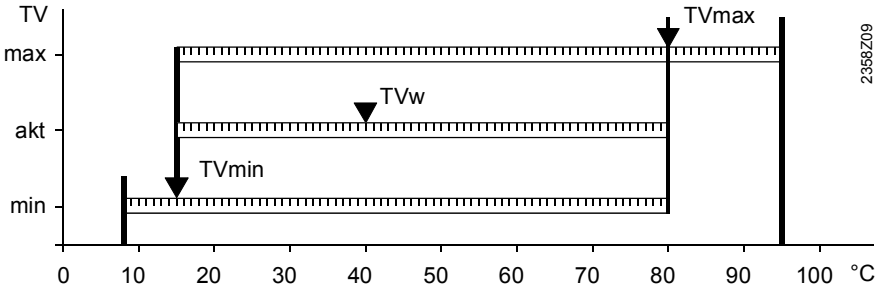
2.7 Primary controller / system pump

Flow temperature setpoint limits

Line no.	*Operating line*
2110	**Flow temp setpoint min**
2111	**Flow temp setpoint max**
2112	**Flow setpoint, cooling min**

Flow temp setpoint minimum/maximum

These limit values can be used to define a temperature range for the heating flow temperature setpoint.



TVw Current flow temperature setpoint
TVmax Flow temp setpoint maximum
Tvmin Flow temp setpoint minimum

Flow setpoint, cooling min

This limit value can be used to define the low limit for the flow temperature setpoint for cooling.

Mixing valve control

Line no.	*Operating line*
2130	**Mixing valve boost**
2131	**Mixing valve cooling offset**
2132	**Actuator type**
2133	**Switching differential 2-pos**
2134	**Actuator running time**
2135	**Mixing valve Xp**
2136	**Mixing valve Tn**

Mixing valve boost

For mixing, the actual value of the boiler flow temperature must be higher than the required setpoint of the mixing valve flow temperature since otherwise that temperature cannot be controlled. The controller generates the boiler temperature setpoint based on the increase set here and the current flow temperature setpoint.

Mixing valve cooling offset

To ensure proper mixing, the actual flow temperature of the cooling aggregate must be lower than the required mixing valve flow temperature setpoint. The cooling demand is reduced by the value set here.

2.8 Boiler

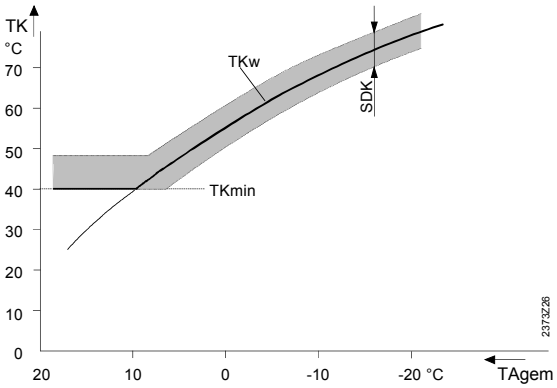
Operating mode

Line no.	*Operating line*
2200	**Operating mode** Continuous operation Automatically Auto, extended running time
2208	**Full charging of buffer** Off ¦ On

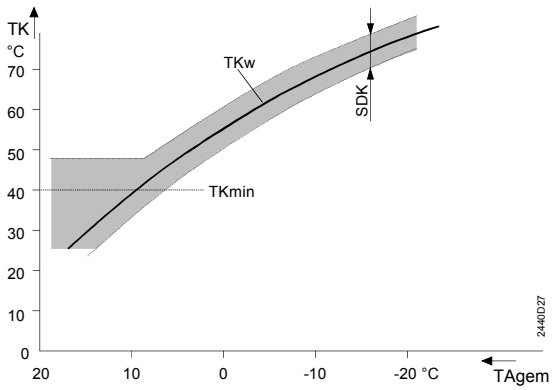
Operating mode

Continuous operation
The boiler is constantly released and the minimum boiler temperature maintained is the parameterized TKMin.
The boiler is only locked when all connected heating circuits are set to Protection mode and when there is no valid request.

Automatically
The boiler is released as soon as there is at least one valid temperature request. Once the boiler is released, the required minimum boiler temperature will always be maintained. The boiler is locked when no valid temperature request is active. This means that with this operating mode, the boiler setpoint will be maintained at the required minimum only if a temperature request is active.



Auto mode, with extended burner running time
The boiler is released as soon as there is at least one valid temperature request. When the boiler is released, the burner will be switched on when the boiler temperature drops below the request of the consumers. The required minimum boiler temperature is maintained only if the burner had to be switched on due to a request from one of the consumers. This means that since the boiler temperature can drop below its minimum, depending on the request, this operating mode leads to a smaller number of burner switching cycles and, therefore, longer burner on times.



Full charging of buffer

Off: The boiler is not used for full charging of the buffer storage tank.

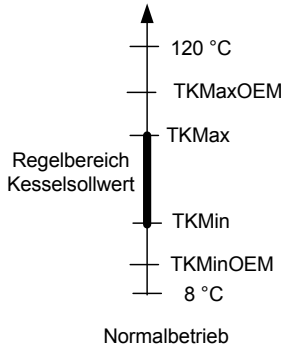
On: The boiler is included in the full charging of the buffer storage tank.
When the function is active, the heat generator is not disabled until the buffer storage is fully charged.

Setpoints

Line no.	*Operating line*
2211	**Setpoint min OEM**
2213	**Setpoint max OEM**

Setpoint minimum / maximum OEM

For this OEM boiler temperature limit control, limit values are defined for the upper and lower boiler temperature setpoints (TKMax and TKMin).



Multistage burner

RVS63.. only

Line no.	*Operating line*
2220	**Release integral stage 2**
2221	**Reset integral stage 2**

Integrals for stage 2

The temperature-time integral is a continuous summation of the temperature differential over time. In this case, the decisive temperature differential is the amount the temperature exceeds the burner's switch-on setpoint or switch-off setpoint.
Through the generation of the temperature-time integral it is not only the period of time that is considered, but also the extent of crossing. This means that when the crossing is significant, burner stage 2 is released or locked earlier than when the crossing is small.

Release integral burner stage 2

When, with burner stage 1, the temperature drops below the switch-on setpoint by the release integral set here, the controller releases burner stage 2.

Reset integral burner stage 2

When, with burner stages 1 and 2, the temperature drops below the switch-off setpoint by the reset integral set here, the controller locks burner stage 2.

Modulating burner (damper actuator / UX)

RVS63.. only

Line no.	*Operating line*
2232	**Damper actuator running time**
2233	**Modulating Xp**
2234	**Modulating Tn**
2235	**Modulating Tv**

Damper actuator running time

To ensure that control of the modulating burner works optimally, the damper actuator running time must be set.
It must be observed that the running time to be set only relates to the range.

- Example

Running time of damper actuator (90°) = 120 seconds
Minimum position of damper actuator = 20°
Maximum position of damper actuator = 80°

Hence, the air damper actuator running time effective for the control is as follows:

$$\frac{120s * (80° - 20°)}{90°} = 80s$$

- Positioning pulses

For control operation, running time-dependent minimum positioning pulses are active that are defined as follows:

Actuator running time TS	*Minimum pulse length*
7.5 s – 14.5 s	Approx. 200 ms
15 s – 29.5 s	Approx. 300 ms
30 s – 59.5 s	Approx. 500 ms
60 s – 119.5 s	Approx. 1.10 s
>120 s	Approx. 2.20 s

Modulating Xp

By setting the right proportional band, the control action of the modulating burner is matched to the plant's behaviour (controlled system).

Xp influences the controller's P-action.

Modulating Tn

By setting the right integral action time, the control action of the modulating burner is matched to the behavior of the plant (controlled system).

Tn influences the controller's I-action.

Modulating Tv

By setting the right derivative action time, the control action is matched to the behavior of the plant (controlled system).

Tv influences the controller's D-action. With Tv = 0, the D-action is deactivated.

Boiler / burner control

Line no.	*Operating line*
2240	**Switching differential of the boiler**
2241	**Burner running time min**

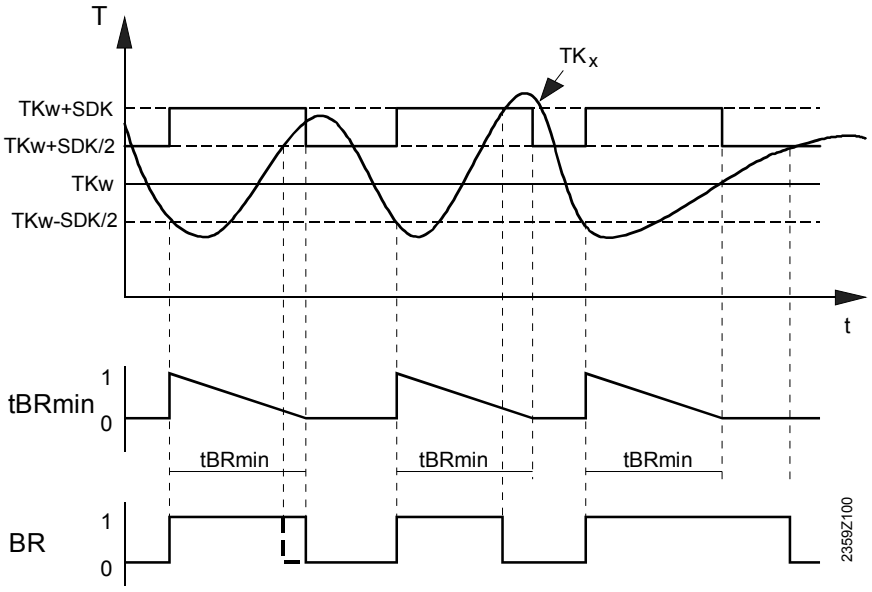
Switching differential of the boiler

The boiler temperature is controlled by a 2-position controller for which a switching differential can be set.

Burner running time min

If a minimum burner running time is parameterized, the burner's switch-off point will be raised by half the boiler's switching differential within that minimum on time. If, within

the minimum burner running time, the boiler temperature exceeds the setpoint by more than the entire switching differential, the burner will also be shut down before the minimum on time has elapsed. On completion of the minimum on time, the burner's switch-off point will be set to the boiler temperature setpoint plus half the switching differential. This function only acts on the first burner stage.



T	Temperature
t	Time
tBRmin	Burner running time min
BR	Burner (0= off, 1 = on)
TKw	Boiler setpoint
TKx	Actual boiler temperature
SDK	Switching differential of the boiler

Overtemperature protection

Line no.	*Operating line*
2250	**Pump overrun time**

Pump overrun time

If the first burner stage is switched off, or if the boiler request becomes invalid, a forced signal is delivered during the parameterized pump overrun time. Consumer pumps do not switch off during the period of time such a forced signal is active.

Minimum limitation of the boiler temperature

Line no.	*Operating line*
2260	**Prot boil startup consumers**
2261	**Prot boil startup boil pump**
2262	**Optimum start control**

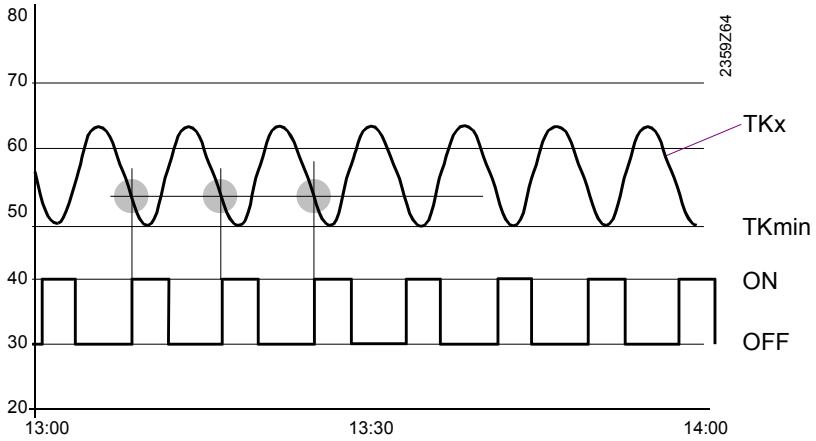
Protective start-up

Below the minimum boiler temperature, protective boiler startup accelerates heating up of the boiler by switching off or reducing the consumer load, or by keeping the boiler pump deactivated, depending on the hydraulic circuit used.

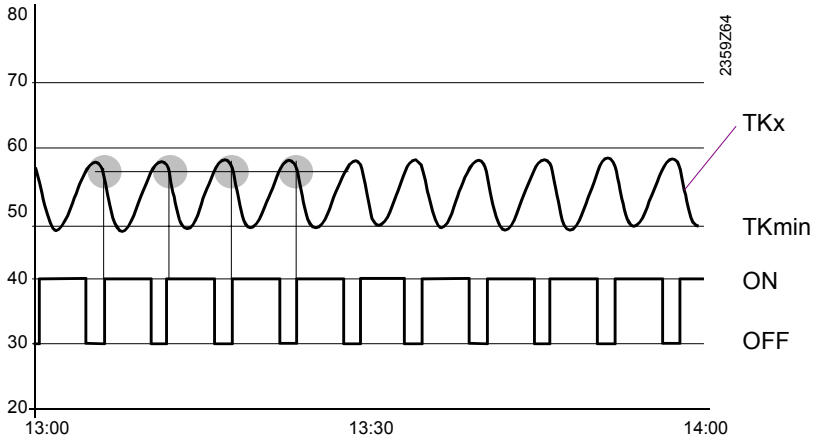
Optimum start control

When the function is activated (graph 1,2), the controller calculates the switch-on point for the burner, based on the boiler temperature gradient, thus enabling that the boiler temperature will not fall below the minimum level.
When the function is deactivated (graph 3), the controller will switch the burner on at TKmin.

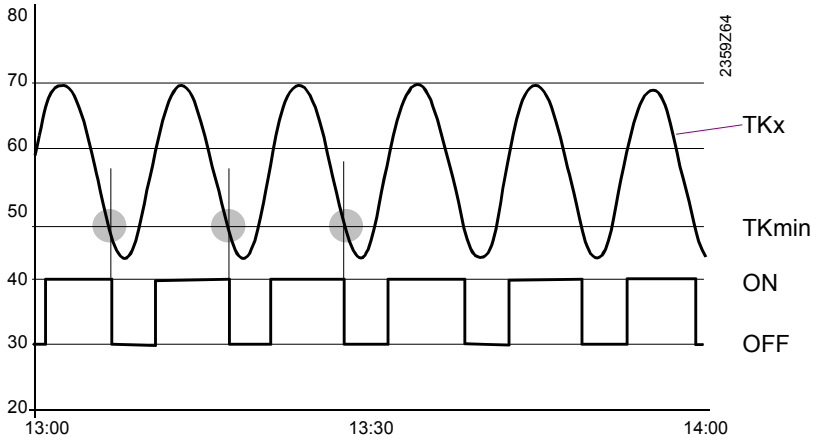
- With optimum burner start control at about 35 % load



- With optimum burner start control at about 65% load



- Without optimum burner start control at about 35 % load



ON	Burner on
OFF	Burner off
TKx	Actual value of the boiler temperature
Tkmin	Minimum limitation of the boiler temperature

Minimum limitation of the return temperature

Line no.	*Operating line*
2270	**Return setpoint min**
2271	**Return setpoint min OEM**
2272	**Return influence consumers**

Return setpoint min

If the boiler return temperature falls below the return temperature setpoint, maintained boiler return temperature becomes active.
With maintained boiler return temperature the consumers can be influenced via the following settings:

- "Return influence consumers" using setting line 2272
- "Control bypass pump" using setting line 2291

Return setpoint min OEM

This minimum limitation of the return temperature OEM is the lower limit value for the minimum of the return temperature setpoint.

Return influence consumers

If, with the boiler released, the return temperature falls below the set minimum temperature, a locking signal will be calculated.

- With proper pump circuits (heating circuit pump, DHW charging pump, external load) is or remains deactivated if the locking signal exceeds the respective threshold value
- In the case of mixing circuits, the flow temperature setpoint will be reduced according to the locking signal value

Return temperature minimum limitation mixing valve

Line no.	*Operating line*
2282	**Actuator running time**
2283	**Mixing valve Xp**
2284	**Mixing valve Tn**
2285	**Mixing valve Tv**

Mixing valve Xp

By setting the right proportional band, the control action of the mixing valve's actuator is matched to the behavior of the plant (controlled system).

Xp influences the controller's P-action.

- Example

In the case of a setpoint / actual value deviation of 20 °C, Xp = 20 produces a manipulated variable corresponding to the running time of the mixing valve's actuator (Tv = 0, Tn = maximum).

Mixing valve Tn

By setting the right integral action time, the control action of the mixing valve's actuator is matched to the behavior of the plant (controlled system).

Tn influences the controller's I-action.

Mixing valve Tv

By setting the right derivative action time, the control action is matched to the behavior of the plant (controlled system).

Tv influences the controller's D-action. With Tv = 0, the D-action is deactivated.

Bypass pump

Line no.	*Operating line*
2290	**Switching differential bypass pump**

Switching differential bypass pump

Control of the bypass pump "according to the boiler return temperature" is in the form of 2-position control for which a switching differential must be set.

Bypass pump

2291	**Control bypass pump** Parallel burner operation Return temperature

Control bypass pump

The boiler bypass pump improves the circulation of water through the boiler, thus preventing the boiler temperature from falling below a certain level.

Parallel with the operation of the burner

The boiler bypass pump is switched on / off according to the burner's on / off signals.

According to the boiler return temperature

The boiler bypass pump is switched on / off according to the minimum limitation of the boiler return temperature and the switching differential of the bypass pump.

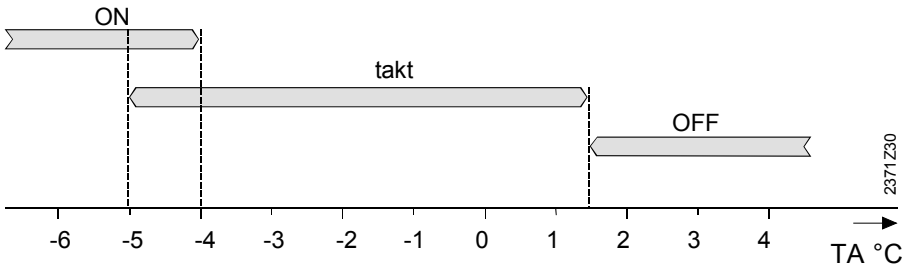
Frost protection

Line no.	*Operating line*
2300	**Frost prot plant boiler pump**

The boiler pump is activated, depending on the **current** outside temperature, although there is no request for heat.

Frost protection for the boiler operates only if frost protection for the plant on operating line 6120 is switched on.

Outside temperature (OT)	Pump	Graph
...-4 °C	Continuously on	ON
-5…1.5 °C	ON for 10 minutes at 6-hour intervals	Cycle (takt)
1.5 °C...	Continuously off	OFF



Electronic limit thermostat

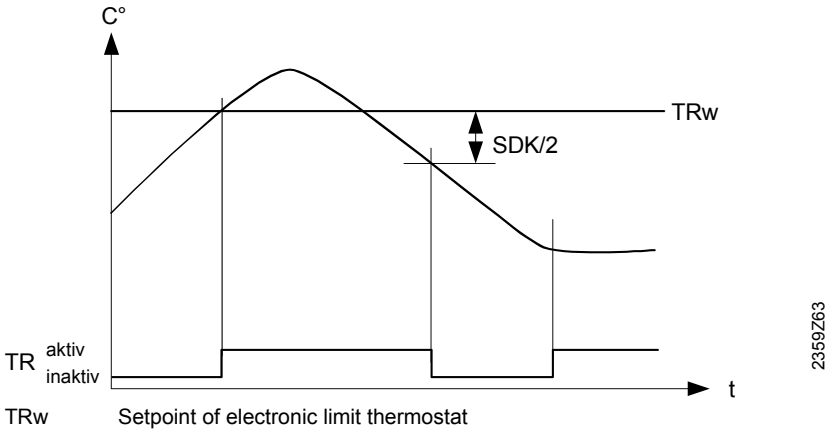
Line no.	*Operating line*
2310	**Limit thermostat function**

Limit thermostat function

The electronic limit thermostat monitors the boiler temperature (TKx) and cuts out if the set limit value (TR setpoint) is exceeded, causing the burner to shut down.

In normal control mode and for the relay test, the TR setpoint used is the boielr temperature's maximum limitation (TKMax) while the "adjustable" value TKMaxHand is used with manual control.

Parameter "Limit thermostat function" can be used to switch the limit thermostat on and off. But it is always active in manual control.



TRw Setpoint of electronic limit thermostat

The limit thermostat is activated when:

- The boiler temperature (TKx) exceeds the TR setpoint
- There is no boiler temperature signal, e.g. no signal from the sensor due to a short-circuit.

TR is deactivated when:

- The boiler temperature drops by one half the boiler switching differential (SDK/2), but at least 2°K.

The electronic limit thermostat is integrated in burner relay control in a way that relays K4/K5 will immediately be deenergized when the limit thermostat becomes active (independent of control, relay test, and manual control). It is only during the SLT (safety limit thermostat) test that the electronic limit thermostat does not become active.

Monitoring the temperature differential

Line no.	*Operating line*
2315	**Temp differential min**
2316	**Temp differential max**

When using a speed-controlled boiler pump, the pump's speed is adjusted in a way that the difference between flow and return temperature will lie within that range.
The pump's speed is significantly reduced only when the boiler delivers the required output.

Temp differential min

Minimum boiler differential
The "Minimum boiler differential" function is used to monitor the speed control of the boiler pump.
When the actual boiler flow/return differential reaches the preset value, the boiler pump speed is not increased further. If the actual differential drops below the preset value, the speed is reduced.
The function can be deactivated with the setting – – – .

Temp differential max

Maximum boiler differential
The "Maximum boiler differential" function is used to monitor the speed control of the boiler pump.
When the boiler flow/return differential reaches the preset value, the boiler pump speed is not increased further. If the actual differential exceeds the preset value, the speed is reduced.

The function can be deactivated with the setting – – – .

Speed control

RVS63.. only

Line no.	*Operating line*
2322	**Pump speed min**
2323	**Pump speed max**
2324	**Speed Xp**
2325	**Speed Tn**
2326	**Speed Tv**

Pump speed minimum/maximum

Boiler pump speed range
The boiler pump motor speed is limited by a minimum and maximum permitted speed. To ensure that the pump operates reliably on start-up, it is operated at maximum speed for the first 10 seconds.

Boiler pump speed control

The "Boiler pump speed control" function reduces the flow of water through the boiler water in order to achieve the specified boiler setpoint. The controller calculates the pump speed required to ensure that the boiler water volume is not reduced to the permissible minimum until the boiler reaches its full capacity. This prevents the boiler from reaching the setpoint at a reduced boiler capacity, causing the pump to continue to operate at reduced speed.
The pump speed is calculated by a PID controller.

With a low boiler capacity (actual capacity less than 66%) the speed-control setpoint is reduced by 10 K. If the boiler capacity rises above 66%, the pump-speed setpoint is increased, so that at 100% boiler capacity, the setpoint for the speed control calculation corresponds to boiler demand.

2.9 Cascade

Operating mode / strategy

Line no.	*Operating line*
3510	**Lead strategy** Late on, early off Late on, late off Early on, late off
3511	**Output band min**
3512	**Output band max**

Lead strategy

- **Late on, early off**

Additional boilers are switched on as late as possible (output band max) and switched off again as early as possible (output band max). This means that the **smallest possible number of boilers are in operation,** or additional boilers operate with short on times.

- **Late on, late off**

Additional boilers are switched on as late as possible (output band max) and switched off again as late as possible (output band min). This leads to the **smallest possible number of switch-on/off actions** for the boilers.

- **Early on, late off**

Additional boilers are switched on as early as possible (output band min) and switched off again as late as possible (output band min). This means that the **largest possible number of boilers are in operation,** or additional boilers operate with the longest possible on times.

Output band

The values are used as switch-on or switch-off criteria in accordance with the selected lead strategy.

Control

Line no.	*Operating line*
3530	**Release integral source seq**
3531	**Reset integral source seq**
3534	**Forced time basic stage**

Integral source sequence

The settings can be used as switch-on or switch-off criteria, in addition to the output band.

- Release integral source sequence

When, with the heat source currently in operation, the demand for heat cannot be met, the difference being the release integral set here, another boiler is switched on.
When the value is increased, additional heat sources are switched on at a slower rate.
When the value is decreased, additional heat sources are switched on at a faster rate.

- Reset integral heat source sequence

When, with the heat source currently in operation, the demand for heat is exceeded by the reset integral set here, the heat source with the highest priority is shut down.
When the value is increased, heat sources operate for longer periods of time (in the case of surplus heat).
When the value is decreased, heat sources are switched off at a faster rate.

Forced time basic stage

When switched on, every boiler operates with its basic stage for the period of time set here. The next stage is released only when this period of time has elapsed.

Minimum limitation of the boiler temperature

Line no.	*Operating line*
3550	**Prot startup cascade pump**

Protective start-up

The protective startup provided by the cascade pump accelerates heating up of the first boiler in the cascade below the minimum boiler temperature in that the cascade pump remains deactivated..

Minimum limitation of the return temperature

Line no.	*Operating line*
3561	**Return setpoint min OEM**
3562	**Return influence consumers**

Return setpoint min OEM

The minimum limitation of the cascade return temperature (operating line 3560) can be adjusted by the OEM.
The person using the heating engineer level can no longer set the minimum limitation of the cascade return temperature below the minimum value required for the boiler.

Return influence consumers

If, with the boilers released, the cascade return temperature drops below the minimum temperature, a locking signal is calculated.

- In the case of pump circuits, the consumer pumps (heating circuit pump, DHW charging pump, ext. load) will be or will stay deactivated if the locking signal exceeds the respective threshold value
- In the case of mixing circuits, the flow temperature setpoint will be reduced according to the locking signal value

Return mixing valve

Line no.	*Operating line*
3570	**Actuator running time**

3571	**Mixing valve Xp**
3572	**Mixing valve Tn**

Actuator running time

Setting the running time of the actuator used with the mixing valve.

Mixing valve Xp

By setting the right proportional band, the control action of the mixing valve's actuator is matched to the behavior of the plant (controlled system).

Xp influences the controller's P-action.

Mixing valve Tn

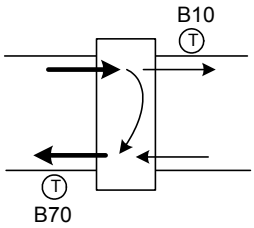
By setting the right integral action time, the control action of the mixing valve's actuator is matched to the behavior of the plant (controlled system).

Tn influences the controller's I-action.

Monitoring the temperature differential

Line no.	*Operating line*
3590	**Temp differential min**

This function prevents excessive cascade return temperatures and improves the cascade's switch-off behavior.



If the temperature differential between flow and return sensor (B10, B70) becomes smaller than the set minimum temperature differential (operating line 3550), one of the heat sources is switched off as early as possible, independent of the selected lead strategy.
When the temperature differential is sufficient again, the selected lead strategy is resumed.

Switching off due to the minimum temperature differential does not apply to the last heat source in the cascade.

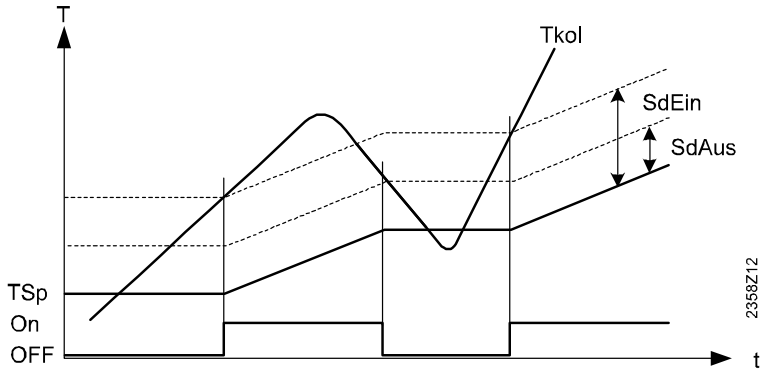
2.10 Solar

Charging controller (dT)

Line no.	*Operating line*
3813	**Temp diff ON buffer**
3814	**Temp diff OFF buffer**
3816	**Temp diff ON swi pool**
3817	**Temp diff OFF swi pool**

Setting - - - adopts the general temperature differential of solar operating lines 3810 and 3811.

For charging via the heat exchanger, a sufficient temperature differential is required, and the minimum charging temperature of the collector must be reached.



TKol	Collector temperature
On / Off	Collector pump
SdOn	Temp differential on buffer / swimming pool
SdOff	Temp differential off buffer / swimming pool
TSp	Storage tank / swimming pool temperature

Start function

Line no.	*Operating line*
3830	**Collector start function**
3832	**Collector start function on**
3833	**Collector start function off**

Collector start function

If the temperature at the collector (especially in the case of vacuum tubes) cannot be correctly acquired when the pump is deactivated, the pump can be activated from time to time.

Speed control

RVS63.. only

Line no.	*Operating line*
3872	**Speed Xp**
3873	**Speed Tn**

Speed Xp and integral action time Tn

The charging setpoint of the tank with first-priority charging and the collector temperature are both used for speed control. A PI-controller calculates the speed required to ensure that the collector temperature is 2K below the switch-on temperature. If the collector temperature rises due to increased solar radiation, the speed is increased. If the collector temperature drops below this setpoint, the speed is reduced. Limit parameters can be set to define a maximum and minimum pump speed.
The PI controller can be influenced by parameters Xp and Tn. The controller has a dead band of +/- 1K.

The resulting speed is delivered at the speed output selected during configuration (Triac AX3 or 0..10V).
If the charging priority is changed, the controller regulates the speed in accordance with the new charging setpoint.

2.11 Solid fuel boiler

Overtemperature protection

Line no.	*Operating line*
4140	**Pump overrun time**
4141	**Excess heat discharge**

Pump overrun time

If the boiler temperature drops below the minimum temperature differential or the minimum setpoint, the boiler pump keeps running for the parameterized overrun time.

Excess heat discharge

If the boiler temperature reaches the adjusted maximum value, excess heat discharge becomes active. This forces the connected consumers to draw heat from the boiler. At the same time, the boiler pump will be switched on.

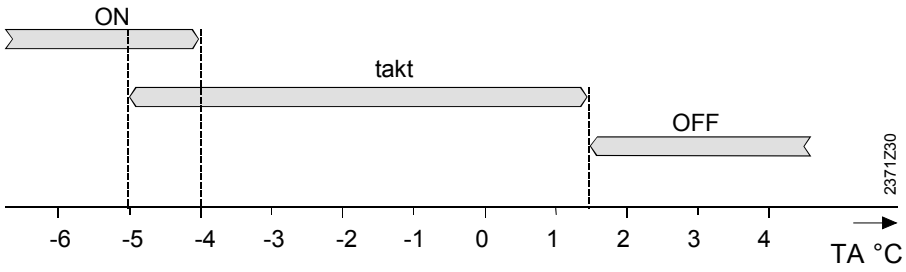
Frost protection

Line no.	*Operating line*
4170	**Frost prot plant boiler pump**

The boiler pump is activated depending on the **current** outside temperature, although there is no request for heat.

Frost protection for the solid fuel boiler operates only if frost protection for the plant on operating line 6120 is switched on.

Outside temperature (OT)	Pump	Graph
...-4 °C	Continuously on	ON
-5…1.5 °C	ON for 10 minutes at 6-hour intervals	Cycle (takt)
1.5 °C...	Continuously off	OFF



2.12 Buffer storage tank

Automatic heat generation lock

Line no.	*Operating line*
4721	**Auto heat generation lock SD**
4724	**Min st tank temp heat mode**

Automatic heat generation lock ensures a temporary hydraulic disconnection of heat source and buffer storage tank. The heat sources will be put into operation only if the buffer storage tank is no longer able to satisfy the current demand for heat.

Auto heat generation lock SD

The switching differential can be adjusted.

Min st tank temp heat mode

If the actual storage tank temperature falls below this level, the heating circuits are shut down.

Stratification/decharging protection

RVS43.. only

RVS43.. only

Line no.	*Operating line*
4740	**Stratif prot temp diff max**
4743	**Stratif prot Vor'schauzeit**
4744	**Stratif prot integr action time**
4746	**DHW protection combined** Off ¦ On

The buffer storage tank anti-stratification function provides for hydraulic balancing between the consumers and the generator without the need for additional shut-off valves for the buffer storage tank.
When the function is active, the volume of water on the consumer side is adjusted so that where possible, the addition of colder water from the buffer storage tank is avoided.

The function is only active if at least one of the heat generators is delivering heat.

If the temperature measured by the common flow sensor (B10 downstream of buffer) drops below the heat generation temperature by more than the preset temperature differential, the volume of water on the consumer side is reduced via locking signals (reduction in the setpoints). If the locking signal achieves 100% for longer than 10 minutes, the locking signal is deleted and re-calculated after a delay of 1 minute. This ensures that the volume of water on the consumer side is not throttled altogether so that there is no flow through sensor B10.

Note: If a primary controller is configured downstream of the buffer storage tank, and if there is no B10 connected, then the function is calculated with the connected B15.

DHW protection combined

For a combined storage tank without a charging pump/diverting valve Q3, the heat demand for room heating (lower part of tank) cannot be supplied without mixing with the DHW section (upper part of tank). It is therefore important to ensure that the water flowing into the top part of the storage tank is not too cold.
The function can be activated / deactivated.
Off:
Function is deactivated. The heat demand for room heating is not increased. Hydraulic integration of the combined storage tank maintains DHW stratification.

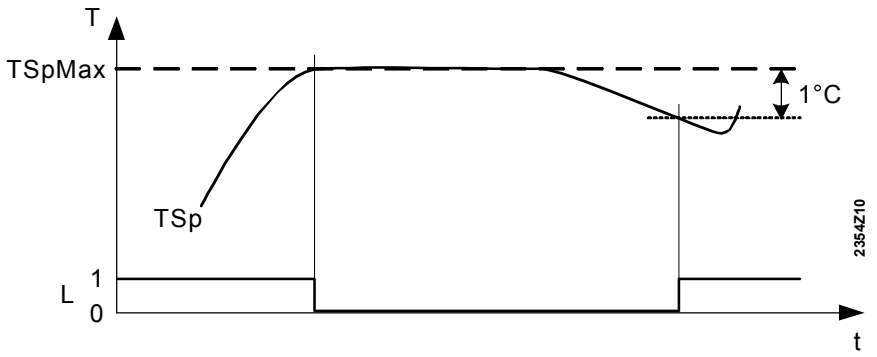
On:
The function is active. The room heating demand is increased for DHW protection. The demand signal to the heat generator is increased so that is at least equivalent to the DHW temperature (B3). At the most, the low temperature limit control remains active only until the nominal DHW setpoint is reached.

Overtemperature protection

Line no.	*Operating line*
4751	**Storage tank temp max**

Storage tank temp max

If the storage tank reaches the maximum storage tank temperature set here, the collector pump will be deactivated. It will be released again when the storage tank temperature has dropped 1 °C below the maximum storage tank temperature.



TSpMax Storage tank temp max (operating line 5051)
TSp Actual value of the storage tank temperature
L Storage tank charging: 1 = on, 0 = off

Full charging

Line no.	*Operating line*
4810	**Full charging** Off ¦ Heating mode ¦ Always
4811	**Full charging temp min**
4813	**Full charging sensor** With B4 ¦ With B42/B41

The "buffer storage tank full charging" function ensures that regardless of the automatic heat generation lock, the released heat sources are not disabled until the buffer storage tank is fully charged.
For full charging, the function "Full charging, buffer" (operating line 2208) must be enabled for the heat sources selected for this purpose.
When the function is active, the heat sources specified here for the full charging function are not disabled either until the full charging setpoint is reached or until the boilers have been switched off in accordance with the burner control function.

Full charging

Off:
The full charging function is deactivated.
Heating mode:
Full charging is active when there is a valid heat demand and the automatic heat generation lock disables the heat generators on the basis of the buffer temperature. The function is deactivated when the buffer storage tank reaches the required temperature, as measured by the sensor selected for the charging function.
Always:
Full charging is active when the automatic heat generation lock disables the heat generators on the basis of the buffer temperature or when the heat demand ceases to be valid. The function is deactivated when the buffer storage tank reaches the required temperature, as measured by the sensor selected for the charging function.

Full charging temp min

The buffer storage tank is charged at least to the preset value.

Full charging sensor

With B4:
Sensor B4 is used for the full charging function.
With B42/B41:
For the full charging function, sensor B42 is used, and if this is not available, then B41.

2.13 DHW storage tank

Release

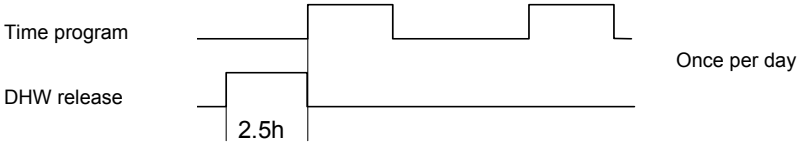
Line no.	*Operating line*
5010	**Charging** Once/day ¦ Several times/day

Charging

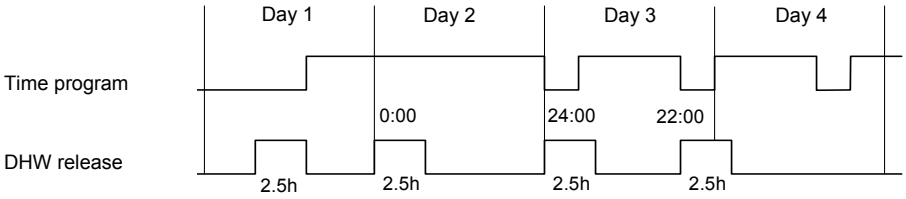
Selection of charging “Once/day“ or “Several times/day” is active only if DHW release is set according to the time programs of the heating circuits

Once / day

Release of DHW charging is given 2.5 hours before the first heat request fom the heating circuit is received. Then, the reduced DHW setpoint applies for the whole day.

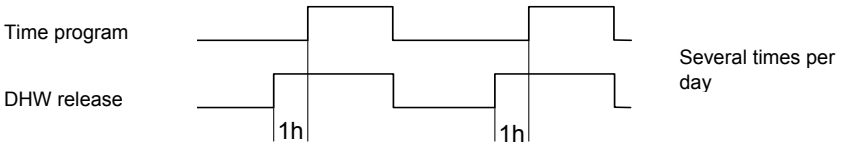


In the case of continuous heating (with no setback periods), release of DHW charging is given at 0:00. The same rule also applies if the first request for heat from the heating circuit is received before 02:30. If a request for heat is received at midnight, DHW charging is released after the first setback period, but no earlier than 2.5 hours before midnight.



Several times / day

When selecting “Several times/day“, release of DHW charging is put forward in time by 1 hour against the periods of time the heating circuit calls for heat, and is then maintained during those periods of time.



Charging control

Line no.	*Operating line*
5024	**Switching differential**

Switching differential

If the DHW temperature is lower than the current setpoint minus the switching differential set here, DHW charging will be started.
DHW charging will be terminated when the temperature reaches the current setpoint.

When DHW heating is released for the first time in a 24-hour period, forced charging will be initiated. DHW charging is also started when the DHW temperature lies within the switching differential, provided it does not lie less than K below the setpoint.

Charging time limitation

Line no.	*Operating line*
5030	**Charging time limitation**

Charging time limitation

During DHW charging, space heating may obtain no or too little energy, depending on the selected charging priority (operating line 1630) and the type of hydraulic circuit. For this reason, it is often practical to set a time limit to DHW charging.

- - -
Charging time limitation is deactivated. The DHW is heated up to the nominal setpoint, even if space heating cannot draw sufficient amounts of heat for a certain period of time.

10 – 600
DHW charging is stopped after the set period of time in minutes and then locked for the same period of time before it is resumed. During this period of time, the heat produced by the boiler is made available for space heating. This cycle is repeated until the nominal DHW setpoint is reached.

When space heating is switched off (summer operation, Eco function, etc.), DHW charging will not be stopped, independent of the selected setting.

Discharging protection

Line no.	*Operating line*
5040	**Discharging protection**

Discharging protection

This function ensures that the DHW charging pump (Q3) will be activated only when the boiler temperature is high enough.

- With sensor
  The charging pump will be activated only when the boiler temperature reaches the level of the DHW temperature plus one half the charging boost. If, during charging, the boiler temperature drops to a level below the DHW temperature plus 1/8 the charging boost, the charging pump will be deactivated again. If 2 DHW sensors are parameterized for DHW charging, the lower temperature is used for the discharging protection function (usually sensor B31).

- With thermostat
  The charging pump will be activated only when the boiler temperature lies above the nominal DHW setpoint. If, during charging, the boiler temperature drops below the nominal DHW temperature minus the DHW switching differential, the charging pump will be deactivated again.

Off
Function is deactivated.
Always
The function is always active.
Automatically
The function is active only if the heat source is not able to deliver heat, or is not available (fault, heat generation lock).

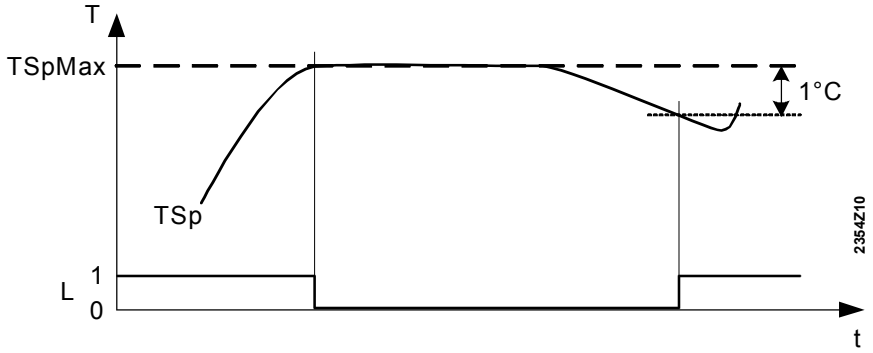
Overtemperature protection

Line no.	*Operating line*
5051	**Storage tank temp max**

Storage tank temp max

If the storage tank reaches the maximum storage tank temperature set here, charging is aborted. It will be released again when the storage tank temperature has dropped 1 °C below the maximum storage tank temperature.

The protective collector overtemperature function can reactivate the collector pump until the storage tank's safety temperature is reached.



TSpMax Storage tank temp max (operating line 5051)
TSp Actual value of the storage tank temperature
L Storage tank charging: 1 = on, 0 = off

DHW push

Line no.	*Operating line*
5070	**Automatic push** Off On
5071	**Charging prio time push**

Automatic push

The DHW push can be triggered either manually or automatically.
In that case, the DHW is heated up once to the nominal setpoint.

Off
The DHW push must be triggered manually.

On
If the DHW temperature falls below the reduced setpoint (operating line 1612) by at least 2 switching differentials (operating line 5024), one-time charging to the nominal DHW setpoint (operating line 1610) will take place again.

The automatic DHW push only works when the DHW operating mode is activated.

Charging prio time push

In the case of a DHW push, the DHW storage tank is charged with absolute priority for the period of time set here.

Excess heat draw

Line no.	*Operating line*
5085	**Excess heat draw** Off On

Excess heat draw

Excess heat draw can be triggered by the following functions:
- Inputs H1, H2, H3 or EX2
- Storage tank recooling
- Solid fuel boiler excess heat draw

When dissipation of excess heat is activated, it can be drawn by space heating. This can be adjusted separately for each heating circuit.

Speed-controlled pump

Line no.	Operating line
5103	**Speed Xp**
5104	**Speed Tn**

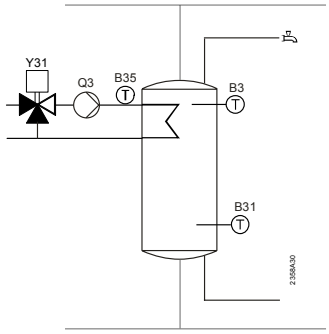
RVS63.. only

RVS63.. only

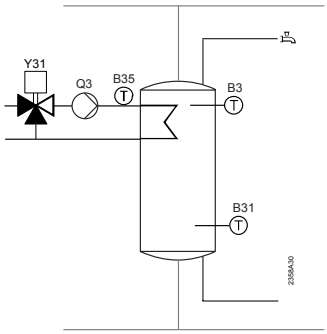
Speed control

Charging pump Q3 speed control

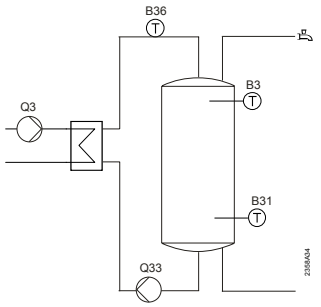
Heat exchanger in storage tank and sensor B36 in the return.
The controller calculates the charging-pump speed required to ensure that the return temperature measured by sensor B36 is 2K above the storage tank temperature (B3).



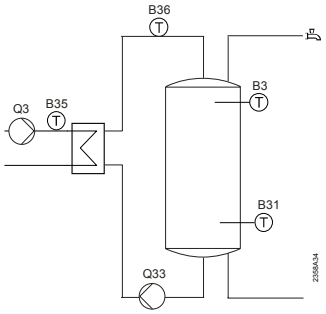
Heat exchanger in storage tank, with primary controller.
The controller calculates the charging-pump speed required to ensure that the DHW setpoint + charging increase measured at sensor B35 is achieved.



Heat exchanger outside the storage tank and sensor B36 in flow (part-schematics 22, 23)
The controller calculates the charging-pump speed required to ensure that the charging temperature measured by sensor B36 is 2K above the DHW setpoint.



Heat exchanger outside storage tank, with primary controller.
The controller calculates the charging-pump speed required to ensure that the charging temperature measured by sensor B35 is 2K above the DHW setpoint. In this case the primary controller sensor B35 must be located in the intermediate circuit.
If a B36 is also connected, B35 must be positioned as the primary control sensor. In this case, the controller calculates the speed required to ensure that the DHW setpoint + charging increase measured by sensor B35 is achieved.



Speed control of intermediate circuit pump Q33 speed

The controller calculates the speed of the intermediate-circuit pump required to ensure that the return temperature measured by sensor B36 is 2K above the DHW setpoint.

If no B36 is connected the calculation is based on sensor B35.
If no valid sensor is connected, the pump speed is not controlled.

Mixing valve precontrol

Line no.	*Operating line*
5120	**Mixing valve boost**
5124	**Actuator running time**
5125	**Mixing valve Xp**
5126	**Mixing valve Tn**

Mixing valve boost

To ensure proper mixing valve flow temperature control, the flow temperature must be higher than the demanded setpoint of the mixing valve flow temperature. The value set here is added to the request.

Actuator running time

Setting the running time of the actuator used with the mixing valve.

Mixing valve Xp

By setting the right proportional band, the control action of the mixing valve's actuator is matched to the behavior of the plant (controlled system).

Xp influences the controller's P-action.

Mixing valve Tn

By setting the right integral action time, the control action of the mixing valve's actuator is matched to the behavior of the plant (controlled system).

Tn influences the controller's I-action.

Transfer

Line no.	*Operating line*
5130	Transfer strategy Always ¦ DHW release
5131	Comparison temp transfer DHW sensor B3 ¦ DHW sensor B31

Transfer strategy

Transfer is permitted either always or at the release times set (operating line 1620).

Comparison temp transfer

For the transfer, the respective DHW sensor can be selected to get a comparative temperature.

2.14 Instantaneous DHW heater

Mixing valve control

Line no.	Operating line
5545	**Mixing valve Xp**
5546	**Mixing valve Tn**
5547	**Mixing valve Tv**

Mixing valve Xp

By setting the right proportional band, the control action of the mixing valve's actuator is matched to the behavior of the plant (controlled system).

Xp influences the controller's P-action.

Mixing valve Tn

By setting the right integral action time, the control action of the mixing valve's actuator is matched to the behavior of the plant (controlled system).

Tn influences the controller's I-action.

Mixing valve Tv

By setting the right derivative action time, the control action is matched to the behavior of the plant (controlled system).

Tv influences the controller's D-action. With Tv = 0, the D-action is deactivated.

2.15 Configuration

Building and room model

Line no.	*Operating line*
6112	**Gradient room model**

Gradient room model

The room model gradient gives the period of time in minutes room heating needs to raise the temperature by 1 °C. The settings made applies to all circuits.

The setting is used to calculate the fictive room temperature of rooms that have no room temperature sensor installed (operating lines 8742, 8772, and 8802).

Setpoint compensation

RVS43.. only

Line no.	*Operating line*
6116	**Time constant setp compens**
6117	**Central setp compensation**
6118	**Setpoint drop delay**

Time constant setp compens

If required, the filter time constant (B10) of the central setpoint compensation can be adjusted.

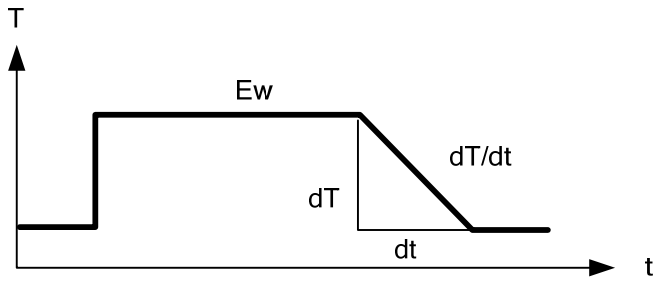
Central setp compensation

Central setpoint compensation matches the setpoint of the heat source to the required central flow temperature.
The setting limits the maximum readjustment, even in cases where grater adaptations would be called for.

This function can only be implemented when using the common flow sensor (B10).

Setpoint drop delay

This prevents multistage heat sources from switching off too quickly, or modulating heat sources from switching off instantly due to their output control.
As a result, the heat sources do not cool down since a demand for heat still exists, which means that they will resume operation a short time later.



T Temperature
t Time
dT/dt Delayed drop

Ew Heat sources set point

The delayed drop acts only in the case of a setpoint jump, but not when the request for heat no longer exists.

Pressure acquisition H1, H2 and H3

Line no.				*Operating line*
H1	H2	H3		
6140	**6150**	**6180**		**Water pressure max**
6141	**6151**	**6181**		**Water pressure min**
6142	**6152**	**6182**		**Water pressure critical min**

RVS63.. only

Water pressure max

If the pressure acquired at input H1, H2 or H3 exceeds the limit value set here, an appropriate error message will be delivered.

117: Water pressure too high
176: Water pressure 2 too high
322: Water pressure 3 too high

If the pressure drops below the limit value by one switching differential, the error will be canceled.

Water pressure min

If the pressure acquired at input Hx drops below the set limit value (parameter “Water pressure min“), the appropriate maintenance alarm will be delivered.

5: Water pressure too low
18: Water pressure 2 too low
22: Water pressure 3 too low

If the pressure exceeds the limit value by one switching differential, the maintenance alarm will be canceled.

Water pressure critical min

If the pressure acquired at input H1 or H2 falls below the limit value set here, an appropriate error message will be delivered and both burner stages immediately shut down.

118: Water pressure too low
177: Water pressure 2 low
323: Water pressure 3 low

When the pressure exceeds the limit value by a switching differential, the error is canceled.

Line no.	*Operating line*
6222	**Device hours run**

Device hours run

This indicates the total number of hours run since the controller was first commissioned.

2.16 LPB system

Error/maintenance/alarms

Line no.	*Operating line*
6610	**Display system messages**
6612	**Alarm delay**

Display system messages

This setting enables system messages transmitted via LPB to be suppressed at the connected operator unit.

Alarm delay

Delivery of the alarm to the OCI can be delayed in the basic unit by setting a delay. This ensures that unnecessary notifications of a service center resulting from short-time errors (e.g. temperature limiter cut out, communication error) can be prevented.
It is to be noted, however, that errors occurring for a short period of time, and reoccurring constantly and rapidly, will also be filtered.

Central functions

Line no.	*Operating line*
6630	**Cascade master** Always ¦ Automatically

When creating a cascade, the controller having address 1 is assigned the role of the cascade master. That controller then activates the required functionality and displays the additional operating menus including the cascade-related parameters.
The identification as the cascade master is made either automatically, depending on the selection, or can be ready assigned by selecting “Always”.

In the case of a cascaded plant, it is recommended to select “Always” on the cascade master. This selection ensures that the cascade operating menus and common functions (e.g. common return temperature control) will not be lost should a power failure occur.

2.17 Errors

History 1..10

Line no.	*Operating line*
6820	**Reset history** No Yes

Reset history

The error history with the last 10 errors will be deleted.

2.18 Diagnostics, consumers

Heating circuit 1, heating circuit 2, heating circuit P

Line no.	*Operating line*
8742	**Room temp 1 model**
8772	**Room temp 2 model**
8802	**Room temp P model**

Room temperature 1 / 2 / P model

The room model calculates a fictive room temperature for rooms that have no room temperature sensor. The value calculated for each heating circuit is indicated on these operating lines.

This allows boost heating, quick setback and optimum start and stop control to be implemented with no need for using a room temperature sensor.
The calculation takes into account the attenuated outside temperature (operating line 8703), the room model gradient (operating line 6112) for switching to a higher setpoint and the building’s time constant (operating line 6110) for switching to a lower setpoint.

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3 Revision history

All changes made to the document since the last issue (see front page) are identified with the Winword function "Highlight". To show such text, use the following key combinations:

Display: Ctrl Shift (Num) +
Hide: Ctrl Shift (Num) -

Or select the same functionality with the following Winword menu:
Menu: [Tools] - [Options]
Command: [Highlight]

The revision history is not visible in the print file (PDF).

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